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A Profile of Genesee County's Residents

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SIGNIFICANT FINDINGS

1. Black household income is 36 percent below comparable white income.
2. Black household income has declined 6.6 percent since 1980 while white income rose 15 percent.
3. In central Flint (Zone 1) less than half of the households are above poverty.
4. Of county residents 16.8 percent are in households below poverty. This compares with 14 percent nationally.
5. About 31,000 children under 18 years of age live in poverty households with an additional 9,600 at 101-150 percent of poverty. This represents 27.8 percent of 148,000 children in this county.
6. There are 25,000 individuals age 65 and over. Of these, 20.8 percent are in poverty and 27.6 percent are at 101-150 percent.

These disturbing figures speak to a worsening situation in Genesee County for blacks, young, the elderly, and those in the central city.

7. Flint area residents are significantly more positive about their neighborhoods than about the Flint area in general. In fact the findings suggest the possibility that many residents "adapt" to the Flint area by turning to their neighborhood and neighbors for providing a sense of identification and attachment.
8. Neighborhood satisfaction is quite high in Flint. Over half the respondents (56 percent) said they were "very satisfied" while an additional 34 percent said they were "somewhat satisfied" with their neighborhood.
9. Substantial variation in neighborhood satisfaction occurs by race and residential location. High levels of satisfaction are found especially among whites in the suburbs and low levels of satisfaction especially among blacks in the city, the inner zone in particular.

BACKGROUND

The 1980 census enumerated 450,449 Genesee County residents, 159,611 in the City of Flint and 290,838 in the remainder of the county. The Michigan Department of Management and Budget estimates that in 1986 there presently are 443,637 county residents, a decrease of 6,812 in the preceding 6 years. This decline reflects a net out-migration of 28,742 together with a natural increase (the excess of live births over deaths) of 21,930. That is, about 1 out of 15 county residents moved elsewhere during this period. Those leaving Genesee County can be divided into three major groups: (1) older residents (retirees) moving to the northern and western parts of Michigan's lower peninsula, (2) older residents moving to Florida and other southern and southwestern states; and (3) younger, working age residents moving to Texas and other southwestern and western states in search of employment opportunities. This last group represented the largest number of those who have left the county but have now decreased appreciably.

In 1980, 80.6 percent of county residents were classified as white, 17.5 percent were black, and 1.9 percent belonged to other racial groups. The comparable survey findings were 77.0, 18.7, and 4.3 percent, respectively. These reflect a net out-migration of 38,700 white residents, a balance of blacks moving in and out, and a net in-migration of 10,000 other nonwhites—primarily Asiatics and, to a lesser extent, native Americans (Indians). Many of the latter are of mixed ancestry and formerly chose to be classified as white. To a limited extent, these figures therefore reflect changes in racial self-identification. There has also been some ongoing increase in the number of Hispanics (mostly of Mexican ancestry) who by race may be classified as white or black.

If these trends continue, Genesee County will have 441,400 residents in 1990, including 331,500 (74.7 percent) whites, 86,500 (19.5 percent) blacks, and 23,400 (5.9 percent) others. The gradual ongoing decrease in the proportion of white residents and the concurrent increase in the percentage of black and other nonwhite residents is happening in all of Michigan's major metropolitan areas. It is a reflection of differences in the age distribution (producing sharply varying birth and death rates) of the racial groups as well as selective migration in and out.

Nearly two-thirds (63.4 percent) of all residents were born in the county; 15.2 percent were born elsewhere in Michigan; 19.3 percent are natives of another state, and 1.8 percent come from a foreign country. There are 43,000 residents 5 years of age or less; 103,000 are 6-17 years of age; 55,000 are 18-24 years of age; 218,000 are 25-64 years of age; and 25,000 are 65 and over. Genesee County has relatively few (5.6 percent) residents in this older age group because of the

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Export Update, by David I. Verway / p. 3

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continuing large scale out-migration of retirees. Survey data indicate that the average (median) age of all county residents is 28.7 years. It is 30.5 for those who are white, 22.0 for blacks, and 27.1 for other nonwhite residents. Whites constitute 88.1 percent of all those who are 65 and over but only 70.7 percent in the under 15 age group. Conversely, black residents are only 10.0 percent of those 65 and over but 26.1 percent in the under 15 years of age population segment. The small percentage of black residents in the 65 and over age group reflects relatively high rates of mortality and low life expectancy, particularly among black males.

The county has been losing white residents since the late 1960s—younger men and women, moving elsewhere in search of improved employment opportunities, and retirees. Survey figures reflect an acceleration of the out-migration of working age residents in the early 1980s. As a result, the white median age increased 1.7 years in this 6 year period. Conversely, there was an appreciable black in-migration from World War II (1941-1945) until the late 1970s. While this has virtually ceased, the number leaving also remains relatively limited. For several decades the small number of other nonwhites has had a large percentage increase which appears to have expanded in the 1980s. Many of the recent arrivals are from China, Korea, and Vietnam.

Flint currently is estimated to have 150,000 residents, a decrease of 9,600 since 1980. This decline reflects a net out-migration of 15,000 together with a natural increase of 5,400. That is, about 1 out of 10 city residents moved elsewhere during this period. Until the late 1970s, most of those leaving Flint were white residents moving to its suburbs. Now, the great majority are moving to other parts of Michigan or out of state. In 1980, 35.4 percent of all Genesee County residents lived in Flint. By 1990 this is projected to decline to 32.5 percent (143,600).

The population in the rest of Genesee County is estimated to have increased 1 percent, from 290,838 to 293,600 between 1980 and 1986. With 8,700 more live births than deaths during this 6 year period, for the first time there are more people moving out of the remainder of the county than moving in. This will probably continue for the rest of the decade, particularly in the close-in suburbs, and may even accelerate.

Survey data indicate that Genesee County presently has an estimated 151,930 households, with an average of 2.92 members. Its residents have a household income of $34,436, a 43.4 percent increase over the $24,007 reported by the 1980 census. The Consumer Price Index (CPI), however, rose 30.2 percent during this period, from 248.2 to 323.1. Adjusting for this change indicates that average household income in Genesee County in fact increased 10.2 percent in the last 6 years, an average annual rise of 1.7 percent. This figure may be an exaggeration because of under-sampling of low income residents.

The 1980 census had noted a 19.0 percent difference between black and white household incomes in Genesee County. Survey findings show that this gap had increased to 36.0 percent by 1986 ($23,750 vs. $37,045) (see table 1). When adjusted for inflation during this 6 year period, average black household income declined 6.6 percent while white income rose 15.0 percent. Among residents in households with income of less than $10,000, 60.3 percent were white, 33.9 percent were black, and 5.8 percent were other. Conversely, among residents in households with income of $50,000 or more, 80.8 percent were white, 15.6 percent were black, and 3.6 percent were other. While the decline in average black income undoubtedly is attributable to a number of factors, one important cause surely is the increasing number of households with a single female parent.

Table 1. Percentage Distribution of All Residents by Race and Household Income

Household income	Total	Race		
		White	Black	Other*
Less than $ 5,000	5.9	4.6	9.4	11.2
$ 5,000- 9,999	11.2	8.5	20.3	14.2
10,000- 14,999	7.7	7.1	9.7	11.8
15,000- 19,999	6.8	7.2	5.8	4.7
20,000- 24,999	6.4	6.5	6.4	7.7
25,000- 29,999	6.0	6.0	4.9	5.3
30,000- 34,999	7.0	7.4	7.1	1.2
35,000- 39,999	5.5	6.6	2.4	1.8
40,000- 49,999	8.6	9.5	5.4	8.9
50,000- 74,999	20.1	20.6	18.3	20.1
75,000- 99,999	7.8	8.3	7.9	0.6
100,000 or more	7.1	7.8	2.4	12.4
Median income	$34,436	$37,045	$23,750	$25,377
Percent of households	100.0	77.0	18.7	4.3

*Includes mixed households

Table 2. Estimated Number of Residents in Households Above and Below Poverty by Place of Residence*

Place of residence	Number of residents	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
Central Flint	54,600	25,900	22,300	6,400
Outlying Flint	95,400	70,700	17,700	7,000
Close-in suburbs	221,100	172,800	29,800	18,500
Rest of county	72,900	62,900	5,000	5,000
Total	444,000	332,300	74,800	36,900

*Estimated by author

Table 3. Percent of Residents in Households Above and Below Poverty by Place of Residence

Place of residence	Total	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
Central Flint	100.0	47.4	40.8	11.8
Outlying Flint	100.0	74.1	18.6	7.3
Close-in suburbs	100.0	80.3	12.3	7.4
Rest of county	100.0	86.3	6.9	6.8
Total	100.0	74.9	16.8	8.3

The U.S. Office of Management and Budget defines poverty as an annual household income of $5,250 for households of one plus $1,800 for each additional member. Based on this definition, 16.8 percent (74,800) of Genesee County residents live in households with incomes below the poverty level. An additional 8.3 percent (36,900) are borderline, just above poverty at 101-150 percent of this level. While 1 out of every 5 county residents lives in a household below poverty or just above it, this varies substantially by place of residence, age, and race.

In central Flint, less than half (only 47.4 percent) of the 54,600 residents are in households above poverty level (see tables 2 and 3). Nearly the same number (40.8 percent or

(Continued on p. 7)

Export Update

by DAVID I. VERWAY, *director, Bureau of Business Research, School of Business Administration, Wayne State University*

Michigan's factories exported manufactured products worth $10.4 billion during 1983 according to figures recently released by the Bureau of the Census. This figure represents a decline of nearly 3 percent from the 1981 figure. Nationally, the real value of manufactured exports fell by almost 17 percent between 1981 and 1983. Consequently, Michigan accounted for a larger proportion of the U.S. total in 1983 than it did in 1981, 7.3 percent compared with 6.3 percent. As a matter of fact, Michigan's share of U.S. manufactured exports also showed considerable improvement over the 1980 figure of 5.8 percent (Table 1).

Two other states reported manufactured exports in excess of $10 billion in 1983. They are California ($16.6 billion) and Texas ($11.5 billion). In 1981, Illinois and Ohio, along with California and Texas, had exports that exceeded the Michigan figure. New York also was in the $10 billion club although at a level slightly below Michigan's.

The census bureau also prepares estimates of supporting exports, i.e., components that are made in other plants and incorporated into the products of plants which actually send their products to other countries. These supporting, or embodied, exports were evaluated by means of an interindustry transactions matrix, a system of equations designed to measure, among other things, how much every other industry must produce to enable any one industry to export what it does. After making these calculations, the Bureau of the Census allocated the figures for each industry in each state based on the share of U.S. production that was not exported.

For Michigan, the value of supporting exports amounted to $4.9 billion in 1983, or about 5.4 percent of the U.S. total. We were exceeded by Texas ($8.1 billion), California ($7.7 billion), Ohio ($6.8 billion), Pennsylvania ($5.5 billion), and Illinois ($5.3 billion).

Estimates of the number of factory jobs generated by manufactured exports were developed on the assumption that the percentage of jobs so created in each plant was the same as exports' percentage of total factory shipments. For Michigan, 58,000 jobs were required to produce our $10.4 billion in direct exports (Table 1), and another 53,400 jobs were involved with the production of supporting exports. Another 22,100 export-related jobs were in wholesale and retail trade, 18,100 in business services, 12,800 in transportation, communication, and utilities, and 18,200 in other industries. In other words, there were 182,600 jobs in this state that were directly and indirectly manufactured export related in 1983. That figure represented about 6.2 percent of private sector employment, making us fourth in such dependency behind Washington (7.7 percent), Connecticut (7.3 percent), and Vermont (6.4 percent).

Table 1. Exports Originating in Michigan and U.S. Factories, Selected Years: 1960–1983

Year	Manufactured exports		
	Michigan ($000,000)	United States ($000,000)	Michigan as a percentage of U.S.
1960	936.2	14,545.7	6.4
1963	1,116.3	16,472.6	6.7
1966	1,568.2	21,299.2	7.3
1969	2,613.1	29,210.0	8.9
1971	2,834.0	33,132.3	8.6
1972	3,243.4	36,608.0	8.9
1976	6,374.1	83,098.0	7.7
1977	6,937.4	85,795.9	8.1
1980	8,764.5	151,216.2	5.8
1981	10,275.0	164,283.1	6.3
1983	10,391.0	142,307.3	7.3

SOURCE: Bureau of the Census, *1983 Annual Survey of Manufactures: Origin of Exports of Manufactured Products* (Washington, D.C., 1986), M83(AS)-5, and similar documents for previous years.
n.a. = not available.
1. Direct export related employment in manufacturing establishments reporting exports.

COMPOSITION OF EXPORTS

Over three-fifths of direct manufactured exports were comprised of shipments from transportation industries (Table 2). Machinery and fabricated metals industries were second and third in value for manufactured exports originating in this state. A substantial proportion of exports that fall in these two categories also find their way into motor vehicles, inasmuch as they include automotive engines and stampings. Interior trim, that is, seat belts, upholstery, and liners that separate passengers from the metal roofs in vehicles, is classified as a product of the apparel and other textile products industries. Most of the production from our textile industry is, in fact, interior trim. In other words, an exceptionally high proportion of our exports are vehicle related.

The census bureau does not develop data on the destination of exports from each state. Canadian trade data show that most of Michigan's exports are destined for Canada. The bulk of our vehicle exports have gone to Canada for sale in that country. The bulk of parts and accessories have gone to Canada where they have become part of vehicles assembled there for sale in both countries. Michigan is the most important state or province in an integrated Canada-U.S. industry as a consequence of the Automotive Products Trade Act of 1965.

AUTOPACT

Until 1965, the United States government levied tariffs of 6.5 percent ad valorum on imported new automobiles and 8.5 percent ad valorum on automobile parts manufactured outside of the country. The Canadian government, in addition to tariffs of 17.5 percent and 25 percent respectively on most vehicles and parts, employed a device known as content requirement of new motor vehicles produced in that country. Vehicle manufacturers whose product embodied a Commonwealth-produced value of at least 60 percent were allowed to import certain components—ordinarily subject to tariffs—duty free. Meeting this 60 percent requirement also entitled a manufacturer to preferential tariff treatment in other Commonwealth countries, enhancing the export potential for vehicles produced in Canada. In other words, the content requirement was an inducement for motor vehicle manufacturers in Canada to manufacture or purchase parts locally.

A salient characteristic of motor vehicle manufacturing is the relatively high level of operation necessary for attaining what is known as economies of scale, enabling a producer to

Table 2. Exports Originating in Michigan Factories, by Industry Group: 1983

Industry	Michigan exports ($000,000)		Total export related	Total export related as a percent of total shipments	
	Direct exports	Supporting exports		Michigan	United States
Food and kindred products	184.0	121.1	305.1	3.7	5.0
Apparel and other textile products	198.2	53.8	252.0	12.2	2.6
Lumber and wood products	24.1	41.3	65.4	7.8	9.2
Furniture and fixtures	66.1	7.4	73.5	3.7	2.2
Paper and allied products	64.0	171.5	235.5	8.4	10.1
Printing and publishing	17.9	27.7	45.6	1.9	2.5
Chemicals and allied products	528.2	352.9	881.1	16.9	17.5
Petroleum and coal products	13.7	56.3	70.0	4.2	5.8
Rubber and miscellaneous plastics products	92.9	177.7	270.6	10.9	11.0
Stone, clay, and glass products	105.7	74.4	180.1	11.5	7.9
Primary metal industries	121.9	937.3	1,059.2	17.9	18.2
Fabricated metal products	884.7	871.1	1,755.8	16.7	11.0
Machinery, except electrical	1,205.5	598.8	1,804.3	19.3	20.9
Electric and electronic equipment	279.5	94.0	373.5	12.6	14.2
Transportation equipment	6,428.8	1,296.4	7,752.2	13.9	14.3
Instruments and related products	121.2	21.8	143.0	15.7	16.8
Miscellaneous manufacturing industires	29.9	5.6	35.5	7.0	8.8
Michigan	10,391.0	4,917.6	15,308.6	13.3	11.3

SOURCE: Bureau of the Census, *1983 Annual Survey of Manufactures, Origin of Exports of Manufactured Products* (Washington, D.C.: 1986), M83(AS)-5, Tables 4 and 5.

operate efficiently and achieve the necessary spreading of essential overhead costs. It is, in other words, the output at which unit costs of production are lowest or constant. Automobile production in Canada is dominated by the Canadian subsidiaries or associates of the U.S. companies which control the bulk of production on this side of the border. In substance there is a North American automobile industry dominated by a few corporations. They produce for a North American automobile market characterized by similar taste distributions on both sides of the Canadian-American border.

While these trade barriers "protected" the Canadian industry and were largely responsible for preserving a sizable Canadian automobile industry, they fostered inefficiencies in vehicle manufacturing. In one case, for example, a company produced "some 60 different models of five distinct passenger lines at its assembly plant in Canada," while "just across the river on the U.S. side, Ford's great River Rouge assembly plant produces only three models of the Mustang line."[1]

The situation was particularly vexatious for Canada because, despite relatively high tariffs and the attendant sacrifice of production efficiencies, sizable amounts of parts and accessories were imported from the United States. At the time of the agreement, Canadians consumed about 7 percent of the total North American production of automobiles and parts, but their share of production was only about 4 percent. Their chronic trade deficit in automobiles accounted for nearly a third of their total trade deficit.

Known formally as the Agreement Concerning Automobile Products between the Government of the United States of America and the Government of Canada, the final accord grew out of a plan advanced by the author of the *Royal Commission on the Automotive Industry* (referred to generally as the Bladen Report).[2] An earlier attempt to ameliorate the Canadian problem by means of an export rebate plan for Canadian producers led to the beginning of the negotiations in 1964 between the governments of the United States and Canada. These negotiations culminated in the agreement, signed in Johnson City, Texas, on January 16, 1965. The agreement was ratified in the United States as part of the Automotive Products Trade Act of 1965, which became Public Law 89-283 on October 21, 1965. In Canada the agreement was given effect immediately by means of an order in council.

In return for promises of substantial production increases, automobile manufacturers in Canada were given the privilege of duty-free importation of motor vehicles and original parts from the United States. The elimination of United States tariffs, with respect to motor vehicles and original parts manufactured in Canada, gave Canadian producers free access to the American market.

RESULTS OF THE AGREEMENT

Automotive trade between our two countries has burgeoned as a result of the Autopact—from $750 million in 1964 to better than $6 billion in 1970. By 1985 two-way automotive trade under the Autopact had grown to $44 billion (see Table 3). Canada's deficit in automotive trade with the United States persisted until 1970. Then Canada's balance was positive until 1972. Between 1973 and 1981 the United States enjoyed the positive balance, and since then, Canada has had a decided edge in such trade. Canada's surplus reached a peak of $4.7 billion (U.S.) in 1984 and remained substantial in 1985 ($3.7 billion). The 1986 figure is likely to be a bit above 1985.

From almost nothing in 1964, trade in assembled passenger cars soared to well over 550 thousand units in 1967. Truck trade grew from virtually nothing to 133,000 units (Table 4). Currently the exchange of vehicles totals about 2.4 million each year.

Initially, rationalization favored Canadian assembly while the parts industry incurred ever greater deficits to support that trend (Table 3). In the president's second annual report to Congress it was observed that:

Table 3. United States and Canada Trade in Automotive Products: 1964–1985

(millions of U.S. dollars)

	Canadian imports[a]			U.S. imports[b]		
Year	Vehicles	Parts	Total	Vehicles	Parts	Total
1964	57	577	634	22	49	71
1965	142	738	880	88	139	227
1966	356	1,011	1,367	451	360	811
1967	666	1,216	1,882	920	474	1,394
1968	923	1,684	2,607	1,483	783	2,266
1969	976	2,134	3,110	2,097	959	3,056
1970	894	2,019	2,913	2,038	1,080	3,118
1971	1,319	2,448	3,767	2,511	1,481	3,992
1972	1,579	2,866	4,445	2,778	1,795	4,573
1973	2,082	3,552	5,634	3,061	2,172	5,233
1974	2,573	3,980	6,554	3,482	1,997	5,479
1975	3,064	4,409	7,472	3,726	2,008	5,734
1976	3,339	5,550	8,889	4,840	2,983	7,823
1977	3,712	6,434	10,146	5,636	3,496	9,132
1978	3,771	7,080	10,851	6,165	4,160	10,326
1979	4,801	7,344	12,145	5,685	3,831	9,715
1980	3,950	6,478	10,428	5,695	2,888	8,583
1981	4,218	7,700	11,918	6,917	3,462	10,379
1982	3,030	7,824	10,853	9,001	3,963	12,964
1983	4,855	9,270	14,125	10,877	5,724	16,601
1984	6,356	11,102	17,458	14,794	7,321	22,115
1985	8,227	11,937	20,164	16,092	7,778	23,870

SOURCE: U. S. Department of Commerce, special release.

a. Canadian import statistics from U.S., based on FAS or transaction values, converted to U.S. dollars on the basis of then prevailing exchange rates.

b. U.S. imports from Canada are FAS or transaction values as published by the Bureau of the Census.

> There has been an increasing movement of assembled vehicles to the United States, offset in part by increased U.S. exports to Canada. It is estimated that on the average approximately 50 percent of parts in passenger cars coming into the United States from Canada were produced in the United States.[3]

During the first fifteen years of the 1965 Act, Michigan benefited, on balance, because its industrial structure and proximity to Canada gave us a competitive advantage. Since 1980, the North American vehicle industry has experienced a dramatic transformation that has eroded our competitive advantage. This erosion, coupled with a sharp decline in value of Canadian currency, has created the sizable imbalance in automotive trade with Canada. Thus, even while our share of U.S. exports of automotive products to Canada has increased, we have lost jobs as a result of displacement of our own domestic markets by Canadian imports.

Structural change has worked against Michigan's automotive industry because we were the pioneering state in mass production of vehicles. Consequently, our industry has a high proportion of the most antiquated and least productive factories. These establishments are the likeliest candidates for closure to reduce capacity. True, Michigan does have several new assembly plants, and more are on the way. Even after the closure of three assembly plants, we will have over a quarter of the U.S.-Canada assembly capacity for cars, trucks, and buses. This cluster of vehicle manufacturing activity and technology is Michigan's major asset in attracting new suppliers and in persuading existing suppliers to stay and expand. We still do have a distinctive competitive advantage in this regard, but it is not as great as it once was due to rapid growth on the Canadian side.

For the Canadians, the price of an integrated North American vehicle industry has been reduction of the autonomy they once possessed. Once semiautonomous, the Canadian subsidiaries of the American companies that produce there now are much more closely linked to Detroit. As a consequence, much of the research and development and managerial activity has shifted to southeast Michigan, buttressing our already strong design, research, and development capabilities. Since 1980, among the fastest growth industries in the state have been business services and robotics, both linked to the automotive industry as suppliers of new technology for the management of workers and production of vehicles.

In other words, Michigan's automotive industry itself is being transformed to meet the competition of the 1990s and beyond. Its existence here is the basis for the new, high technology kinds of activities that supply vehicle makers with the know-how to continue to increase productivity and quality.

FREE TRADE

Canada and the United States are conducting talks on the matter of completely free trade between our two countries. As matters now stand, it seems unlikely that either country is willing to incur the political risks entailed in submitting its economy to the rigors of additional competition at a time when both are running sizable deficits with the rest of the world. It is interesting nonetheless to speculate on the changes that would take place.

In the absence of tariff barriers of any sort, free trade between Canada and the United States would further burgeon, with each country tending to specialize according to its competitive advantage within fairly narrowly defined industry groups. Within the steel industry, for example, Canada would tend to produce more of the raw product because that is where its advantage lies. More steel would arrive here from Hamilton and Algoma while Michigan would close one or two blast furnaces. On the other hand, production would increase at stamping plants in Michigan and Ohio, with some of the increase being exported to Canada. Similarly, in plastics we would import more raw material and export more fabricated product. Employment would increase among fabricators that supply Lionel trains, for example, and the Gay Toys Company. Michigan pharmaceutical and office furniture manufacturers would benefit. Exports of tart cherries, navy beans, and blueberries would increase. Our apple producers would feel the pinch from increased imports from Canada.

A free trade area would benefit both countries through specialization with the benefits from economies of scale production being greater in Canada than here. Access to the Canadian market represents an incremental gain in productivity for American producers. Entry to the vast American market represents a substantial gain in productivity for Canadian producers. By the same token, potential gains from free trade are far greater in Canada than they are here. Dislocations from free trade with the United States also will be more severe for Canadians who would lose out in the shift to comparative advantage.

On both sides, a matter of concern is the providing of adjustment assistance to workers and businesses who are

Table 4. Factory Sales of Motor Vehicles from Canadian and U.S. Plants, by Canadian, U.S., and Other Destinations: 1964–1986

(thousands of dollars)

Year	Plants in United States				Plants in Canada				U.S.-Canada Total
	Exports to Canada	Other Exports	U.S. Domestic	U.S. Total	Exports to U.S.	Other Exports	Canada Domestic	Canada Total	
PASSENGER CARS									
1964	15	183	7,554	7,752	—	38	518	557	8,308
1965	46	159	9,121	9,326	34	40	631	704	10,031
1966	122	140	8,337	8,598	161	37	494	692	9,290
1967	246	120	7,070	7,437	326	35	355	716	8,153
1968	289	126	8,407	8,822	480	37	359	876	9,698
1969	286	131	7,806	8,224	677	36	315	1,028	9,251
1970	246	114	6,187	6,547	682	30	207	919	7,466
1971	352	111	8,122	8,585	780	38	258	1,075	9,660
1972	382	89	8,352	8,824	837	37	263	1,137	9,961
1973	476	103	9,079	9,658	862	41	323	1,226	10,884
1974	500	109	6,721	7,331	802	52	317	1,172	8,503
1975	549	90	6,073	6,713	713	58	272	1,043	7,756
1976	563	97	7,838	8,498	809	75	251	1,135	9,632
1977	586	103	8,512	9,201	832	87	237	1,156	10,357
1978	542	103	8,494	9,165	765	107	156	1,128	10,293
1979	582	159	7,678	8,419	582	93	298	973	9,392
1980	489	71	5,840	6,400	539	86	202	827	7,227
1981	455	51	5,749	6,255	516	102	154	772	7,027
1982	320	32	4,696	5,049	662	13	108	782	5,832
1983	505	33	6,201	6,739	773	19	153	946	7,685
1984	562	30	7,030	7,621	830	22	163	1,015	8,636
1985	636	30	7,337	8,002	878	6	184	1,068	9,071
1986	635	30	6,878	7,543	870	5	170	1,045	8,588
TRUCKS AND BUSES									
1964	3	160	1,377	1,540	—	7	103	110	1,650
1965	10	126	1,616	1,752	7	16	119	142	1,893
1966	20	105	1,607	1,731	58	23	114	195	1,926
1967	35	90	1,414	1,539	98	27	101	226	1,765
1968	48	83	1,765	1,896	145	31	100	277	2,173
1969	60	82	1,781	1,923	198	30	87	315	2,238
1970	54	73	1,566	1,692	158	32	62	252	1,945
1971	69	70	1,914	2,053	166	30	83	279	2,332
1972	94	58	2,294	2,447	204	23	91	318	2,765
1973	120	72	1,787	2,980	215	27	113	356	3,335
1974	168	90	2,470	2,727	189	40	148	376	3,104
1975	134	136	2,003	2,272	181	48	161	390	2,662
1976	129	117	2,734	2,979	266	44	188	498	3,477
1977	135	127	3,179	3,442	348	47	211	605	4,047
1978	139	152	3,416	3,706	397	51	214	662	4,369
1979	158	137	2,741	3,037	348	44	241	633	3,670
1980	86	117	1,464	1,667	291	47	188	526	2,193
1981	89	98	1,513	1,700	304	59	152	515	2,215
1982	71	51	1,778	1,905	372	16	70	457	2,362
1983	106	47	2,260	2,414	442	10	93	546	2,959
1984	150	41	2,884	3,075	668	8	134	810	3,853
1985	198	33	3,126	3,357	678	8	168	854	4,211
1986	231	35	3,190	3,456	687	4	164	855	4,311

SOURCE: Motor Vehicle Manufacturers Association of the United States, Inc., special release.

disadvantaged by free trade, for example, the owners, management, and workers at McLouth Steel, a company that very likely would fail under unfettered trade with Canada. In the interests of equity as well as efficiency, the federal government will have to find a means of compensating the losers, perhaps through buyouts or through transition assistance.

NOTES

1. *Data Relating to H. R. 9042, Automotive Products Trade Act of 1965* (Washington, D.C.: 1965), p. 30.
2. (Ottawa: 1961). The Commission had only one member, V. W. Bladen.
3. *Second Annual Report of the President to the Congress on the Operation of the Automobile Products Trade Act of 1965* (Washington, D.C.: 1968), pp. 40-42; and *Canadian Automobile Agreement Hearing before the Committee on Finance, United States Senate, Ninetieth Congress, Second Session, July 19, 1968* (Washington, D.C.: 1968), p. 15.

A PROFILE

(Continued from p. 2)

22,300) are below poverty, and 11.8 percent or 6,400 are just above poverty. In outlying parts of Flint, 74.1 percent are above poverty, 18.6 percent are below it, and 7.3 percent are just above it. In close-in suburbs, these percentages are 80.3, 12.3, and 7.4 respectively, while the percentages are 86.3, 6.9, and 6.8 for the remainder of the county. Flint residents constitute 53.5 percent of those below poverty, 36.3 percent of those just above it, and 29.2 percent of those with household income greater than this.

Among Genesee County's 146,000 children and adolescents under 18 years of age, 21.2 percent (31,000) live in households below poverty level, 6.6 percent (9,600) are at 101-150 percent of poverty, and 72.2 percent (105,400) are above it (see tables 4 and 5). Children and adolescents constitute 41.4 percent of those below poverty, 26.0 percent of those just above this, and 31.7 percent of those in households with greater income. Among the 273,000 men and women in the working ages (18-64 years), 14.2 percent (38,600), live in households below poverty, 7.2 percent (20,400) in households at 101-150 percent of poverty, and 78.7 percent (214,000) above it. Among the 25,000 residents 65 years or older, 20.8 percent (5,200) are in households below poverty, 27.6 percent (6,900) are just above poverty, and 51.6 percent (12,900) are living at a greater income level. The number of low income or borderline elderly may well be even greater since many traditionally are unwilling to provide this information to survey takers.

Among the county's 342,300 white residents, 12.9 percent (44,200) live in households below poverty, 7.4 percent (25,300) are just above it, and 79.7 percent (272,500) have a greater income (see tables 6 and 7). Conversely, among the 84,500 black residents there are 29.6 percent (25,100) below poverty, 10.4 percent (8,800) just above that, and 60.0 percent (50,900) above that. These figures are 27.4, 13.7, and 58.9 percent respectively for other nonwhites. The 22.9 percent of Genesee County residents who are black or other nonwhite constitute 39.7 percent of all individuals below poverty, 30.1 percent of those at 101-150 percent of poverty, and 18.3 percent of those with income above poverty.

The U.S. Census Bureau recently reported that nationwide 14.0 percent of all residents live in poverty. This figure indicates that poverty is greater in Genesee County, and particularly in central Flint, than elsewhere. A comparison of poverty percentages for black and white residents shows that both have higher rates here. In fact, the disparity may even be greater since surveys such as those conducted by Project for Urban and Regional Affairs, University of Michigan, Flint, have some under-enumeration of households with lowest incomes due to refusals to participate and other related factors.

Despite this limitation, survey findings clearly indicate that poverty is particularly concentrated among certain population groups—the young and the elderly, black and other nonwhite residents, and those living in central Flint. They suggest the gap between the haves and have nots is widening and becoming more permanent.

Table 4. Estimated Number of Residents in Households Above and Below Poverty by Age*

Age (in years)	Number of residents	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
5 or less	43,000	28,200	11,100	3,700
6- 9	32,500	24,500	6,100	1,900
10-14	42,200	30,500	9,000	2,700
15-17	28,300	22,200	4,800	1,300
18-24	55,000	37,400	11,800	5,800
25-44	142,400	116,000	18,200	8,200
45-64	75,600	60,600	8,600	6,400
65 and over	25,000	12,900	5,200	6,900
Total	444,000	332,300	74,800	36,900

*Estimated by author.

Table 5. Percent of Residents in Households Above and Below Poverty by Age

Age (in years)	Total	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
5 or less	100.0	65.6	28.5	8.6
6- 9	100.0	75.4	18.8	5.8
10-14	100.0	72.3	21.3	6.4
15-17	100.0	78.4	17.0	4.6
18-24	100.0	68.0	21.5	10.5
25-44	100.0	81.5	12.8	5.7
45-64	100.0	80.2	11.4	8.4
65 and over	100.0	51.6	20.8	27.6

Table 6. Estimated Number of Residents in Households Above and Below Poverty by Race*

Race	Number of residents	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
White	342,300	271,400	45,100	25,800
Black	84,800	50,900	25,100	8,800
Other**	16,900	10,000	4,600	2,300
Totals	444,000	332,300	74,800	36,900

*Estimated by author.
**Includes mixed households.

Table 7. Percent of Residents in Households Above and Below Poverty by Race

Race	Total	Above 150% of poverty	Poverty or below	Borderline poverty to 150%
White	100.0	79.7	12.9	7.4
Black	100.0	60.0	29.6	10.4
Other*	100.0	58.9	27.4	13.7
Total	100.0	74.9	16.8	8.3

*Includes mixed households.

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Quarterly Personal Income in Michigan

	Millions of dollars, annual rates, seasonally adjusted						Percentage change 86(1) to 86(2)	
	1985				1986			
	1	2	3	4	1	2	Michigan	United States
TOTAL LABOR AND PROPRIETORS' INCOME BY PLACE OF WORK								
By Type								
Components of earnings								
Wages and salaries	73,239	73,781	75,121	76,062	77,799	77,169	- 3	+ 7
Other labor income	8,878	8,954	9,201	9,379	9,595	9,491	- 1.1	+ 1.3
Proprietors' income	6,419	6,728	6,495	6,793	6,923	7,598	+ 9.8	+ 8.6
Farm	553	772	411	525	440	814	+85.0	+62.3
Nonfarm	5,867	5,957	6,084	6,268	6,483	6,784	+ 4.6	+ 3.6
By Industry								
Farm	748	968	608	722	639	1,014	+58.8	+44.4
Nonfarm	87,788	88,495	90,209	91,512	93,677	93,244	- 5	+ 1.1
Private	76,119	76,558	78,144	79,551	81,577	80,887	- 8	- 1.0
Ag. Serv., For., Fish., and other	243	248	259	259	270	287	+ 6.3	+ 5.9
Mining	480	468	444	431	459	453	- 1.3	- 9.5
Construction	3,379	3,416	3,435	3,789	3,879	4,311	+11.1	+ 3.8
Manufacturing	34,258	34,294	35,271	36,774	37,654	36,049	- 4.3	- .3
Nondurable goods	5,817	5,758	5,911	6,054	6,234	6,208	- .4	+ .4
Durable goods	28,441	28,536	29,360	30,720	31,420	29,841	- 5.0	- .6
Transportation and public utilities	4,924	4,880	4,950	4,962	5,065	5,013	- 1.0	- .7
Retail trade	8,011	8,008	8,158	7,955	8,084	8,104	+ .2	+ .5
Wholesale trade	4,838	4,870	4,906	4,811	4,918	4,965	+ 1.0	+ .2
Finance, insurance, and real estate	3,584	3,617	3,684	3,679	3,816	3,983	+ .4	+ 4.3
Services	16,402	16,758	17,035	16,891	17,432	17,722	+ 2.3	+ 1.9
Government and government enterprises	11,669	11,938	12,066	11,961	12,101	12,358	+ 2.1	+ 1.5
Federal, civilian	1,531	1,540	1,528	1,533	1,572	1,607	+ 2.2	+ .6
Military	333	330	330	346	346	348	+ .6	+ .1
State and local	9,806	10,068	10,207	10,083	10,183	10,403	+ 2.2	+ 1.9
DERIVATION OF PERSONAL INCOME BY PLACE OF RESIDENCE								
Total personal income	121,891	122,828	124,182	125,791	128,279	128,651	+ .3	+ 1.4
Nonfarm personal income	121,143	121,860	123,575	125,068	127,640	127,638	—	+ 1.0
Farm personal income	748	968	608	722	639	1,014	+58.7	+44.4
Derivation of total personal income								
Total earnings by place of work	88,536	89,463	90,817	92,234	94,316	94,258	- .1	+ 1.6
Less: Personal contributions for social insurance	6,037	6,059	6,161	6,222	6,509	6,423	- 1.3	+ .5
Plus: Adjustment for residence	735	745	746	763	771	780	+ 1.2	+ .5
Equals: Net earnings by place of residence	83,234	84,149	85,402	86,776	88,579	88,616	—	+ 1.7
Plus: Dividends, interest & rent	19,318	19,318	19,267	19,465	19,596	19,693	+ .5	+ .8
Plus: Transfer payments	19,340	19,361	19,514	19,550	20,104	20,342	+ 1.2	+ 1.1
State U.I. benefits	867	762	676	645	714	714	—	+ 5.4
Transfers excl. state U.I.	18,473	18,599	18,838	18,905	19,390	19,629	+ 1.2	+ .9

SOURCE: Bureau of Economic Analysis, special release.

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The Plastics Industry in Southeast Michigan

by DAVID I. VERWAY, *director, and* GARY SHIELDS, *graduate assistant, Bureau of Business Research, Wayne State University*

This study is based on statistics available from the U.S. Bureau of the Census and the Michigan Employment Security Commission. Data were collected through telephone surveys of plastics fabricators in the Detroit area, interviews with experts, and telephone surveys of and visits to laboratories and institutes.

SUMMARY OF FINDINGS

Growth in the use of plastics has been rapid and will continue to be so as the industry shifts from metal in vehicles, furniture, plumbing, and a host of other product applications, and from paper, wood, and glass in packaging. Encouraging this proliferation of applications is the declining cost/price structure of many formerly "exotic" polymers. As the demand for these polymers increases, volume production will decrease unit costs and prices to plastics consumers, allowing the polymers to replace other materials in still more applications.

Southeast Michigan has a comparative advantage in fabricating plastic for vehicle components because of the skills and infrastructure here and because of the size of market. One important result from the plastic industry survey indeed has shown that the two primary reasons for being located in Southeast Michigan were proximity to the vehicle industry and the quality of the local labor force. Our specialty is injection molding of automotive components- injection molders here tend to be small job shops of less than seventy-five employees. Many of these establishments are at risk because of lack of in-house research and development as well as marketing expertise. The automobile industry in particular is in the process of redefining the role of their suppliers by requiring them to take on additional design and engineering functions formerly executed by the auto companies themselves. Many smaller plastics manufacturers are unprepared for this expanded role and are unaware of locally available assistance in these areas.

Extrusion molding is more capital intensive than injection molding. Southeast Michigan seems to be underrepresented in extrusion molding. We also are underrepresented in injection blow molding and in injection stretch blow molding. Several interviewed firms expressed the desirability of attracting additional extruders to the region as a means of improving the overall business climate for firms in the plastics industry here.

Compression molding is gaining popularity with the growth of fabrication of larger panels for vehicles. Very few compression molders are located here. Compression molding is far more capital intensive than injection or extrusion molding. Southeast Michigan also is underrepresented in the manufacture of plastic foam products and in plastic bottles. Southeast Michigan seems to be adequately represented in coatings and in adhesives and sealants, as well as in the manufacture of plastics working machinery. Several plastics experts interviewed felt that the latter industry, plastics working machinery, promised to be a strong growth area shortly. While a large number of research institutions and companies are working on developing innovative polymers and plastics, relatively few organizations are designing the new machinery that will be necessary for turning the newly created polymers into finished products. Given this area's historically strong tool and die industry and the emergent robotics firms in Southeast Michigan, there may exist an opportunity for local businesses to benefit from this growth segment of the overall plastics industry.

Plastics itself may be divided into thermoset and thermoplastic and into commodity and engineered plastic. Resin producers promote thermoset or thermoplastic depending on their own special interests. As matters now stand, thermoplastic seems likely to grow more rapidly than thermoset because it has an advantage in recyclability and in broader application. However, which of the two will win in the market for large automotive panels, such as those that form the outer skin of the Fiero sport car, is unclear.

Engineered plastics, including composites, are those that are developed for special use, such as heat resistant components near a vehicle engine. Because of the automotive industry, Southeast Michigan has an advantage in attracting offices and laboratories that focus on promoting the use of engineered and composite plastics.

Most resin used in the area is imported from other states, especially Texas, Louisiana, Ohio, Indiana, and states along

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the East Coast of the United States. Resin production is capital intensive, part of the petrochemicals industry. Here again, many plastic-using firms expressed regret that more resin manufacturers were not located in Southeast Michigan, since they were being forced into locating supply sources of raw plastics in other parts of the country. While many resin makers have sales offices and representatives located in the eight-county region, the plastics themselves must be shipped here, adding to local producers' costs. This problem is most serious for smaller, low-volume fabricators.

RECOMMENDATIONS

Southeast Michigan should first concentrate on strengthening the base in plastics production that already is located here. There is a serious information void regarding the kind of technical support that is available locally. More than 60 percent of the respondents to the survey said they knew of no plastics research or technology center in Southeast Michigan, even though several do exist. Of those firms that were aware of research taking place, few said that the research had benefited their company in any way.

Plastics fabricators also appear to be in need of management and financial advice, especially that dealing with merging and joint venturing with each other and with companies not now located in Michigan. Technical advice may also be needed by those firms taking on additional development and engineering functions, such as those suppliers in the automobile industry that will now be required to design the vehicle components themselves. Among small companies, export markets are largely ignored. Export marketing promises to be another field where additional managerial, financial, and technical guidance would serve to strengthen the local plastics industry.

One way to market our base is to share information about firms located here with those outsiders that are interested in entering our market through dealing with an established company. Consideration should be given to the publication of a directory of the southeast Michigan plastics industry, in all of its facets. The directory would be a guide to services available and an opportunity for those here to attract newcomers. It would also be a promotional device at trade fairs.

The hi-tech part of the industry—research, development, and services to the industry—finds it advantageous to be located in Southeast Michigan because of the size of the market as well as the available skills and the hi-tech cluster of activity already located here. Every major producer of resin should have a presence in Southeast Michigan because of the importance of networking with customers and others in the industry. Within the plastics industry, Southeast Michigan's major competitive advantage appears to be services to the industry. The Chamber of Commerce should work diligently to assure that Southeast Michigan is a major component in the incipient Michigan Materials Processing Institute which will further strengthen the cluster.

Within plastics fabrication, expansion in the number of extruders and compression molders should be encouraged through recruitment from elsewhere as well as through encouragement of local entrepreneurs. We are least advantaged in commodity plastics, which are cost sensitive. Our advantage in plastics fabrication is in engineered plastics and in composites, not only because these segments are less cost sensitive, but also because of the technical support available here to develop and use these more sophisticated materials. For the same reasons, coatings, adhesives, and sealants also should be targeted.

Southeast Michigan appears to be disadvantaged in construction and packaging plastics. Still, having one of the nation's premier building booms with the end not yet in sight, there are reasons for plumbing manufacturers and fabricators of other construction plastic to locate in the area. A general brochure that highlights our advantages as well as our construction boom would seem appropriate.

PLASTICS MANUFACTURING

The industries that comprise plastics manufacturing include resin, the raw material that fabricators fashion into intermediate and final products, and plastics fabrication itself. Altogether there are five plastics industries that are of interest in this report. These industries, as defined in the Standard Industrial Classification (SIC) system employed in presenting U.S. statistics, are SIC 2821 (plastics materials, synthetic resins, and nonvulcanizable elastomers), SIC 2295 (coated fabrics, not rubberized), SIC 2851 (paints, varnishes, lacquers, enamels and allied products), SIC 2851 (adhesives and sealants), and SIC 3079 (miscellaneous plastics products). A related industry, SIC 3559 (special industrial machinery, not elsewhere classified), also bears some investigation inasmuch as it includes plastics-working machinery.

Resin production was the specialty of eleven Michigan manufacturing establishments, according to the most recent Census of Manufactures in 1982. Most of the data pertaining to these establishments were suppressed so as to avoid revealing sensitive information for a single company. In 1982 Michigan had between 1,000 and 2,499 employees in this industry, out of a national figure of 54,700. In 1977 the next previous year for which data are available, Michigan had over 2,500 out of the 57,200 national total employment in SIC 2821.

The Census Bureau also collected data on the value of shipments by all producers for various product categories (five-digit classes). These data reveal that Michigan is specialized in the production of thermoplastics, which are recyclable because they can be softened with heat after they have been allowed to harden. In 1982 shipments of thermoplastics (SIC 28213) totaled $271,900,000 compared with $72,200,000 for thermosets (SIC 28214). The value of shipments of thermosets made in this state increased between 1977 and 1982; the value of shipments of thermoplastics made here declined. Both increased nationally.

Texas is the leading producer of both thermoplastics and thermosets. Louisiana, Illinois, New Jersey, and West Virginia are other major producers of thermoplastics. New Jersey, California, Ohio, and Pennsylvania are the other major producers of thermosets. States for which 1982 shipments data are available are ranked as follows:

	Thermoplastics			Thermosets	
State	1977	1982	State	1977	1982
	(Value of shipments in millions of dollars)				
Texas	2,795.1	5,093.6	Texas	411.7	557.3
Louisiana	997.6	1,274.6	New Jersey	170.1	264.5
Illinois	685.5	896.0	California	163.0	171.7
New Jersey	640.7	858.1	Ohio	210.2	165.6
West Virginia	577.9	821.1	Pennsylvania	155.8	144.7

State	Thermoplastics 1977	1982	State	Thermosets 1977	1982
Ohio	631.9	739.8	Illinois	66.7	129.5
Tennessee	318.5	545.3	Wisconsin	66.8	110.8
Kentucky	374.1	518.5	New York	125.1	104.4
California	336.3	415.1	Massachusetts	96.1	85.8
Pennsylvania	302.0	407.1	North Carolina	79.0	83.8
Michigan	316.3	271.9	Michigan	42.7	72.1
New York	154.4	258.8	South Carolina	39.8	72.1
Massachusetts	242.1	229.4	Oregon	30.9	57.1
Florida	95.1	163.4	Arkansas	n.a.	52.4
Georgia	70.5	147.8	Louisiana	n.a.	38.7
South Carolina	121.0	136.7	Florida	26.0	36.6
North Carolina	101.1	102.9	Mississippi	30.2	31.0
Maryland	n.a.	58.5	Alabama	24.2	26.9
Minnesota	n.a.	26.7	Missouri	n.a.	20.0
Missouri	43.2	26.2	Rhode Island	n.a.	12.1
			Minnesota	n.a.	2.2
U.S.	9,897.7	14,251.6	U.S.	2,226.7	2,877.9

n.a. Not available
SOURCE: 1982 Census of Manufactures, MC82-1-28B

Michigan accounted for 2.5 percent of thermosets in 1982, up from 1.9 percent in 1977. In thermoplastics our share declined from 3.2 percent to 1.9 percent of the U.S. total between 1977 and 1982. In reading these numbers bear in mind that southeast Michigan markets were decimated by the recession which bottomed out in 1982.

More recent stastistics can be developed from another publication of the Bureau of the Census, *County Business Patterns*. According to the 1984 version of this document, Michigan had thirteen resin producers employing 2,016 people in March 1984. Three were located in Macomb County and three in Oakland. Together these establishments employed approximately 300 people. Over half of Michigan's employment in this industry in 1984 was accounted for by one large establishment located in Midland County, according to *County Business Patterns*.

Fabrication of plastics materials (SIC 3079), was a specialty of 633 establishments located in Michigan in 1982. These establishments employed over 25,000 people in 1982, making this the largest of the Michigan industries surveyed in this project.

Value added by plastics fabricators located in the state of Michigan grew by about 150 percent between 1977 and 1984, compared with a national growth rate of about 100 percent. In 1977 Michigan commanded 4.4 percent of national value added; in 1984, 5.7 percent. Employment data through 1986 suggest that the industry has continued its rapid growth and that Michigan has gained national share.

Year	Value added ($000,000) Michigan	United States	Percentage	Employment Michigan	United States	Percentage
1972	284.6	6,004.7	4.7	18,300	346,900	5.3
1977	510.0[a]	11,770.1	4.4	22,500[a]	453,700	5.0
1982	833.2	17,935.3	4.6	25,200	478,900	5.3
1983	1,015.5	19,398.6	5.4	27,400	486,000	5.6
1984	1,325.0[a]	23,254.6	5.7	33,000[a]	528,300	6.4
1985	n.a.	n.a.	n.a.	39,000[a]	545,000[a]	7.2
1986	n.a.	n.a.	n.a.	41,000[a]	565,000[a]	7.2

n.a. Not available
a. Estimates by the authors
SOURCE: 1982 Census of Manufactures, MC82-1-30A, Annual Survey of Manufactures, M83(AS)-6, M84(AS)-6, M84(AS)-1, Michigan Employment Security Commission, special release

In 1982, a year for which detailed commodity figures are available for some products for some states, Michigan was responsible for 1,014.6 million dollars or 8.9 percent of the $11,339.6 million shipments in the 3079J category. This is the category of molded plastics products, not elsewhere classified. Most of this is injection molding. The second largest category for this state was SIC 3079K, miscellaneous plastics products. Here the total was $241.3 million or 3.0 percent of the $7,949.9 million national figure. With $196.6 million, we accounted for 4.5 percent of the national total of $4,357.9 million in shipments for SIC 30797, plastics foam products. In the 30792 category, we accounted for 1.9 percent of the national $6,026.8 million shipments. The Michigan figure was $111.7 million. SIC 30792 is defined as plastic film and sheet, unsupported. Nearly half of this is packaging material. Michigan's share of the small plastics piping industry, SIC 30794, was 1.1 percent ($15.7 million out of a total $1,406.7 million shipments). In plastic bottles, SIC 30795, our share was .7 percent ($12.7 million of the national $1,921.4).

In molded plastics products (3079J), Michigan ranked third behind California and Ohio. Our ranking in miscellaneous plastics products (SIC 3079K) was eleventh, with Ohio and California first and second. In plastics foam products (SIC 30797), our ranking also was eleventh, with California and Ohio first and second. Michigan ranked twentieth in unsupported plastic film and sheet (SIC 30792). The top three states in this category were Illinois, Ohio, and New Jersey. The plastics piping industry was dominated by Texas, California, North Carolina and Florida. These four states accounted for 36 percent of 1982 shipments. Out of the thirty states for which plastic piping figures were reported for 1982, seven other states had fewer shipments than Michigan. Finally, in the twenty states where plastic bottles production was reported, Michigan ranked last. California, New Jersey, Ohio, Illinois, Pennsylvania, Maryland, Texas, and Indiana, the leaders, accounted for 60 percent of shipments.

The top dozen states ranked according to value of shipments in the various commodity categories are:

Molded (SIC 3079J) State	Value	Misc. (SIC 3079K) State	Value
California	$1,184.7	Ohio	$758.7
Ohio	1,064.1	California	740.5
Michigan	1,014.6	Pennsylvania	634.9
Illinois	916.4	New Jersey	479.9
Massachusetts	706.8	Massachusetts	471.6
New Jersey	628.2	Texas	447.5
Pennsylvania	587.9	Indiana	428.4
New York	536.8	Illinois	409.4
Indiana	498.0	New York	408.2
Texas	471.9	Tennessee	253.1
Minnesota	326.0	Michigan	241.3
Wisconsin	301.1	North Carolina	237.8

Foam (SIC 30797) State	Value	Film and Sheet (SIC 30792) State	Value
California	$470.4	Illinois	$563.0
Ohio	406.9	Ohio	463.4
Illinois	294.0	New Jersey	383.0
North Carolina	286.8	California	380.5
Pennsylvania	273.0	Virginia	317.8
Indiana	232.6	New York	297.5
Texas	215.3	Massachusetts	295.0
Kentucky	218.6	South Carolina	281.4
Georgia	211.7	Georgia	280.0

Foam (SIC 30797)	
New Jersey	198.4
Michigan	196.6
New York	161.6

Film and Sheet (SIC 30792)	
Pennsylvania	30.7
Wisconsin	26.5
Alabama	20.7

Piping (SIC 30794)	
Texas	$215.2
California	148.5
North Carolina	76.1
Florida	70.2
Indiana	68.0
Iowa	56.4
New York	54.3
Kentucky	53.5
Kansas	53.1
Ohio	53.0
Georgia	48.8
Arkansas	44.5

Bottles (SIC 30795)	
California	$212.9
New Jersey	183.9
Ohio	157.6
Illinois	139.3
Pennsylvania	124.4
Maryland	121.6
Texas	116.3
Indiana	112.3
Kansas	74.3
Georgia	70.8
Florida	57.0
New York	47.8

SOURCE: 1982 Census of Manufactures, MC82-1-30A

In overall shipments of miscellaneous plastics products (SIC 3079), Michigan was led by California, Ohio, Texas, New Jersey, Pennsylvania, and New York in 1982. Massachusetts was close on our heels. Because of our more rapid than national growth since the 1982 depressed figures were reported, we have no doubt Michigan has risen in the rankings.

Currently about half of Michigan plastics fabrication (SIC 307) employment is located in the eight-county Detroit region as defined by the Greater Detroit Chamber of Commerce. Macomb County establishments account for approximately one-third of the area's employment in this industry, perhaps because tool and die shops located there have found it easy to engage in this new kind of production. Oakland County has less than a third of the employment total, and Wayne about 15 percent. Oakland County has a greater number of establishments in SIC 307, however. The average size of establishment in the industry is smallest in Wayne and Oakland counties.

Paints and allied products were specialties of sixty-two Michigan manufacturing establishments in 1982. These establishments employed 2,800 people, or over 5 percent of the national total for this industry (SIC 2851). Nearly 6 percent of national value added was produced here. The Census of Manufactures also reports on SIC 2851 for the Detroit-Ann Arbor Standard Consolidation Statistical Area (6-county Detroit SMSA plus Washtenaw County) for 1982. About 2,000 people in the Detroit-Ann Arbor SCSA produced 62 percent of value added in this state's SIC 2851.

Value added by Michigan paints and allied products establishments grew by about 50 percent between 1977 and 1983, compared with a national growth of two-thirds. For Michigan, 1984 value added data are not available. Employment figures suggest that the industry has continued to grow, that Michigan's share topped out in 1984, and that Michigan's share has fallen rather dramatically since 1984. The data which are available suggest that the Detroit area lost share of the Michigan total between 1972 and 1982, but has more than regained share since 1982.

Year	Detroit	Michigan	United States	Percentage
		Value added ($000,000)		
1972	68.7	98.9	1,791.7	5.5
1977	150.5	218.4	2,821.3	7.7
1982	146.6	235.9	3,952.5	6.0
1983	n.a.	324.4	4,706.3	6.9
1984	n.a.	n.a.	4,932.1	n.a.
		Employment		
1972	2,800	3,900	65,900	5.9
1977	2,800	3,900	61,400	6.4
1982	2,000	2,800	54,100	5.2
1983	2,000[a]	3,000	53,600	5.6
1984	2,500[a]	3,300[a]	55,300	6.0[a]
1985	2,600[a]	3,300[a]	57,000[a]	5.8[a]
1986	2,300[a]	2,900[a]	56,000[a]	5.2[a]

a: Authors estimates
n.a.: Not available
SOURCE: Annual Survey of Manufactures, M83(AS)-6, M84(AS)-6, M84(AS)-1, Michigan Employment Security Commission, special release, 1982 Census of Manufactures, MC82-1-28E

In 1982, the value of Michigan shipments of product finishes for original equipment manufacturers (SIC 28512) totaled $319.7 million, or 12.8 percent of the national total. Ohio, number one, had 15.3 percent. Michigan was second. In architectural coatings, special purpose coatings, and the miscellaneous category, Michigan was an also ran state.

Product Finishes (SIC 28512)		Architectural (SIC 28511)		Miscellaneous (SIC 28515)	
State	Value	State	Value	State	Value
Ohio	$380.5	California	$460.3	New Jersey	$170.9
Michigan	319.7	Illinois	418.7	California	96.4
Illinois	269.5	Texas	327.7	Illinois	72.0
California	268.0	Ohio	219.0	Tennessee	68.3
Pennsylvania	189.0	New Jersey	181.2	Ohio	54.6
N. Carolina	160.1	Kentucky	176.3	Michigan	30.9
New Jersey	154.8	Georgia	169.4	Texas	28.8
Indiana	96.4	Maryland	140.1	New York	26.1
Texas	79.0	Florida	119.6	Missouri	23.9
Georgia	75.2	Pennsylvania	109.2	Georgia	21.5
New York	71.7	New York	75.2	Pennsylvania	19.3
Wisconsin	68.3	Massachusetts	69.0	Massachusetts	18.4

SOURCE: 1982 Census of Manufactures, MC82-1-28E

In overall shipments of paints and allied products (SIC 2851), Michigan followed California, Illinois, Ohio, Texas, and New Jersey.

Adhesives and sealants (SIC 2891) were the specialties of thirty-seven Michigan manufacturing establishments in 1982. These establishments employed 1,000 people or 5.5 percent of the national total for this SIC. Michigan accounted for 6.4 percent of national value added. Over half of that figure originated in the Detroit SMA (6-county region).

Value added in Michigan adhesives and sealants factories grew by 82 percent between 1977 and 1982, compared with 54 percent for the national industry. Industry figures for this state cannot be extended beyond 1982 for lack of data from the Bureau of the Census and the Michigan Employment Security Commission.

In value of shipments of synthetic resin and rubber adhesives (SIC 28914) Michigan ranked seventh in 1982, with 6.9 percent of the national total. In 1977 we had 5.5 percent of the U.S. figure for this commodity group. In 1982,

our 7.6 percent of the national total for shipments of caulking compounds and sealants put us fourth among the states. In 1977 we shipped 5.4 percent of the national total for SIC 28915.

Synthetic Resin and Rubber Adhesives (SIC 28914)

State	Shipments (millions) 1972	1982
Illinois	$172.3	$199.5
California	116.6	192.4
Ohio	109.9	168.2
New Jersey	90.0	167.7
Massachusetts	89.6	125.8
New York	75.7	103.4
Michigan	67.0	94.8
Georgia	54.0	94.4
Pennsylvania	67.1	88.1
Texas	23.1	73.1
Wisconsin	27.2	46.8
Missouri	24.2	45.6

Caulking Compounds and Sealants (SIC 28915)

State	Shipments (millions) 1977	1982
Ohio	$66.6	$90.9
Illinois	14.9	63.7
New Jersey	30.0	53.6
Michigan	19.7	45.9
California	35.9	37.8
Texas	17.8	34.2
Pennsylvania	15.3	25.6
Missouri	28.1	25.4
Indiana	5.0	19.1
Georgia	13.2	9.6
Massachusetts	1.6	8.1
Florida	2.8	3.7

SOURCE: 1982 Census of Manufactures, MC82-1-28H.

In *coated fabrics, not rubberized* (SIC 2295), Michigan had three establishments in 1982. In 1977 the industry employed between 1,000 and 2,500 in this state. The 1982 figure lay between 500 and 1,000. Michigan has approximately 5 percent of national employment in the industry. In 1984 there were about 750 employed in the industry. The largest plant (Ford Motor in Mount Clemens) accounted for most of that figure.

Shipment figures for Michigan for commodities within the SIC 2295 category are not available. Leaders in shipments of vinyl coated fabrics in 1982 were Ohio, Massachusetts, Connecticut, New Jersey, New York, North Carolina, and Indiana. Much the same list of states appears in the tabulation of shipments of other coated fabrics (SIC 22953).

The quinquennial Census of Manufactures lists us as third in shipments of plastics-working machinery in 1982, up from fifth in 1977. Michigan accounted for about 10 percent of shipments of plastics-working machinery in 1982, compared with 26 percent for Ohio and 17 percent for Massachusetts.

Plastics-Working Machinery

State	Shipments (millions) 1977	1982
Ohio	$230.5	$205.5
Massachusetts	90.4	132.6
Michigan	41.5	78.3
New Jersey	58.5	59.2
Pennsylvania	33.4	59.1
Connecticut	45.6	48.9
New York	49.7	28.0
Wisconsin	12.7	26.7
Illinois	13.0	24.5
Indiana	n.a.	22.6
California	10.1	17.8
New Hampshire	n.a.	14.9

n.a. Not available.
SOURCE: 1982 Census of Manufactures, MC82-1-35D.

Data for the five-digit commodity categories are not available for sub-state areas.

SURVEY RESULTS

The survey was conducted during the time period of December 1986 through February 1987. After conducting several general background interviews, an initial interview questionnaire was developed. This instrument was again tested in the field and on the telephone until the final version of the questionnaire (Appendix 1) was created. One hundred interviews were completed using the final version of the survey form. All telephone interviews were conducted by Mr. Shields and Mr. Flynn at Wayne State University.

Firms selected for interview were chosen using a random number table from a list of approximately 2300 companies purchased from Pick Publications, a commercial mail list supplier, and from a private customer listing obtained from a large, local plastics manufacturer. Nine different SIC classifications (3079, 2821, 3714, 2654, 3041, 2434, 5013, 2899, 5161) were included in the listings in order to provide a wide cross-section of sample respondents. Substitutions were made for nonrespondent firms. Nonresponse bias was judged to have had a minimal impact on the final data due to the small number of noninterviews. Although the overall response rate for the survey was excellent, response rates for individual survey questions varied considerably. For this reason survey responses are presented as *percentages of response for each individual question*.

Consistent with economic research results presented earlier in this report, the largest single sample group has been injected molders (45 percent), followed by other molders and formers (28 percent), fabricators (22 percent), extruders (6 percent), "other manufacturers" (4 percent), and one raw plastics manufacturer. Several firms reported more than one plastic process, accounting for a total in excess of 100 percent. Also as expected, the product lines of most respondent firms in question 2 frequently contained at least some auto-related products (42 percent), though 40 percent of responding companies reported producing *no* products for the auto industry. Packaging and container products were the next most frequently mentioned goods in question 2 (14 percent), followed by custom and prototype products (7 percent), and sheet, rod, and tube producers (3 percent). The nonauto category included a wide array of industrial and general consumer products, including such things as computer housings, tools, optical and fabric coatings, toys, appliance parts, and medical equipment. This product distribution is similar to the results obtained in an earlier survey of the plastics industry done in 1981 for the Chamber of Commerce, though this survey found a relatively greater proportion of auto-related products than did the earlier research.

Question 3 similarly produced a number of different responses with the following plastics most often mentioned: polyethelenes (in excess of 25 percent of the total responses to this question), polycarbonates and ABSs (25 percent each), and polyurethanes (slightly less than one-fourth of total answers). Nylons, vinyls, polystyrenes, and polypropylenes were other frequently mentioned plastic stock inputs. One notes the domination of thermoplastics in this group of raw plastics. Question 4, which relates to the level of usage of plastics in question 3, has been a more difficult question to answer for most respondents, especially those with varied product lines using several different kinds of plastics. Of those sixty-two firms able to answer this item, the average usage of plastics has been 2.1 million pounds annually with

about $2.9 million each year expended for raw plastic materials. This has ranged from 1,000 pounds to 200 million pounds, and $5,000 to $25 million for the sample. There is a possibility that the 200 million pound response was overstated, given the other information contained in that firm's questionnaire. The prevalence of small- to medium-sized plastics companies in Southeast Michigan is clearly evident in these results.

Question 5 produced much more uniform responses. Nearly every responding firm said they purchased a major portion of their raw plastics from suppliers located outside of Michigan. The states of the eastern seaboard (NJ, PA, NY) were the most frequently mentioned supplier-source states, followed by Ohio, Indiana, and Illinois. Texas, Louisiana, and Florida also received several mentions as points of origin for raw plastics. While these results correspond closely to the general economic research presented in the first part of this report, it may be significant to note that, with the exception of Indiana, very few firms said they would consider these particular states superior to Michigan in terms of location for their own businesses. Thus, nearness to supply sources may not be the dominant criteria in making business location decisions for plastics-related firms. This point will be touched upon later in another survey item.

The next question shows the domination of single-facility firms in the sample (84 percent), though thirteen companies reported two or more production facilities in Southeast Michigan, including one firm with four facilities and one firm with five plants here. Current operating capacity is rather high among these firms, averaging 83 percent, with over half of the firms (58 percent) currently running at full capacity, as defined by the respondents. These results do not, however, take into account seasonal factors that may have affected responses to this item, since the question was worded in the present tense in the survey. A logical conclusion would be that by producing for cyclically influenced industries, such as the automotive industry, plastics producers themselves would be likely to adjust production to fit seasonal demand. The emergence of just-in-time inventory systems would also lend weight to seasonally adjusted production methods in some areas of the plastics industry. There did appear to be a slightly positive correlation between size, as measured by 1986 sales dollars in item 8 and number of employees in item 11, and operating level, that is, the higher the 1986 sales volume and the higher the number of employees, the higher the firm's current operating level was likely to be.

Sales figures in the next question were reported at a mean slightly less than $7 million with a low of $90,000 and a high of $40 million for 1986. As is the case with most research, sales figures reported in this survey could be affected by underreporting bias due to the confidential nature of the information. Seventy-four usable responses were obtained from this sample of firms. These sales tabulations are yet another indicator of the relatively small size of most local plastics firms. Sales have risen over the last three years for 69 percent of sampled firms (24 percent, same sales, 8 percent, decreased sales). Sales projections were generally optimistic with 69 percent of respondents anticipating increases over the next three years, 9 percent predicted sales declines, and the remaining 22 percent thought their sales would remain unchanged. Both large and small firms reported about the same sales results over the last three years with larger firms (sales greater than $7 million and more than 75 employees) being more optimistic than smaller firms with regard to future sales.

In addition to sales, another measure of firm size is employment. In this plastics survey, firms ranged in size from three employees to one thousand employees in Southeast Michigan, producing a mean of approximately seventy-one employees. The final measurement of firm size in question 12, number and kinds of machinery, produced inconclusive results due to the large number of different kinds of machinery employed in production. The most frequently used measures of machinery were tonnage and ounce capacity of injection molding machines. In the first case, tonnage ranged from 55 to 2200 tons. In the latter measure, the ounce capacity of machinery in use by respondent firms ranged from a low of 1/3 ounce to a high of 640 ounces. In both cases respondents felt that the available technology in the immediate area was sufficient to handle nearly any production process currently being done anywhere in the country.

In question 13, nearly 71 percent of the respondents reported the auto industry as one of their customer groups, a much higher percentage than in question 2 where specific products were mentioned. This apparent contradiction could be due to several factors, including the research team's unfamiliarity with the large number of auto components and the versatility of plastic products in a variety of applications and industries. It appears certain, however, that the auto industry does have a strong impact on the plastics industry in Southeast Michigan. It also appears that this dominance will continue, at least in the short run, as 78 percent of the respondents reported that their customer groups have not changed in the last three years, and 59 percent felt that their customer groups would not change in the next five years. While it may be significant that 41 percent of the firms reported that their customer groups would change before 1991, few firms could/would be specific as to what industries would be added or dropped from their current client base. What is encouraging for the local industry is that, of the firms who were willing and able to predict customer groups in item 15, the vast majority of firms forecast expanding their customer base, rather than dropping client industries. This is an apparent continuation of a trend over the last three years, based on responses given to question 14 in which twice as many firms had diversified their customer groups as had concentrated their buyers. If this projected diversification does indeed materialize, an overall strengthening of the plastics industry in Southeast Michigan could result.

Several general response categories can be summarized for question 16. First, plastics will continue to make inroads into applications that have previously been the domain of wood and metals, including a continued increase in the use of plastics in the automobile industry. Leading the way will be several new synthetics—copolymers, composites, and heat resistants. The use of automation will also increase, both in the production of the plastics themselves and in the production of the final plastic products. This will have a spinoff effect on the machine tool industry because new machines will have to be engineered and developed in order to make use of the new polymers. There also seems to be a fundamental shift taking place in the auto industry with suppliers taking on additional research and development functions. Previously producing exactly to auto manufacturers' specifications,

many component suppliers have reported that they are now given only general requirements by the auto manufacturers and must design and engineer the component parts themselves. This might have a direct bearing on the future plastics industry here, if more technical training and knowledge will be required for plastics manufacturers.

Most respondent firms were optimistic when asked about the future of the plastics industry in Southeast Michigan. Nearly two-thirds of the respondents predicted moderate to strong growth for the industry as a whole in the future. Several companies mentioned continued strong demand for plastics from the auto industry, spurred by the declining costs of formerly exotic plastics and the increased use of these plastics in new applications. It is worth mentioning, however, that about one-third of the firms surveyed felt that Southeast Michigan's position in the future plastics industry would be hurt by the generally higher costs of doing business here due to taxes, unions, and government regulations. A few respondents also felt that imported plastics were fast becoming a threat to local manufacturers. Many of these same concerns were voiced in 1981 in the survey of plastics mentioned earlier in this report, yet the industry as a whole has experienced healthy growth.

In response to question 19, a number of suggestions were offered as ways in which the Chamber of Commerce could promote the plastics industry. One firm mentioned a "yellow pages" directory of all the firms in the area. Three companies requested that the Chamber sponsor a plastics trade show similar to plastics shows in Chicago and Cleveland. This would also serve the information function of putting manufacturers in touch with plastics users locally. Other firms asked that the Chamber attempt to bring more raw plastics manufacturers and extruders into the state as a way of stimulating local growth. This is consistent with an earlier finding in this survey which showed that most firms do not purchase their raw plastics from Michigan manufacturers. The final suggestion was that the Chamber back efforts directed at lowering the costs of doing business in the state such as lower worker's compensation rates, lower unemployment taxes, and elimination of the single business tax. Approximately 40 percent of the survey's respondents felt there was nothing the Chamber could do to promote plastics or could not offer a specific suggestion for assisting the industry.

Question 20 produced mostly negative responses (64 percent). Of those firms familiar with plastics research locally, the most well known was the General Electric Center on Telegraph Road. The University of Detroit (six mentions) and Ferris State University (five mentions) were the only other local research and/or development centers mentioned in the survey, though several respondents mentioned that the Societies of Plastics Industry and Engineers (SPI and SPE) had answered technical questions over the telephone. Subquestion 20c further diminished the perceived effectiveness of local research facilities; only eleven firms in the entire survey felt that their firms had benefited from plastics research being done in Southeast Michigan. This appears to be an area where the Chamber of Commerce can have a positive impact on the industry by filling what appears to be an information void between plastics manufacturers and plastics researchers and laboratories.

About half of the responses to question 21 were negative. Of the firms needing training assistance, statistical process control was mentioned six times, pattern and mold workers were requested twice, and "general" skills (reading, writing, measuring) were identified as lacking in two different cases.

Southeast Michigan was rated a superior location for plastics manufacturers by 60 percent of the total respondents. The reasons most frequently cited for this advantage are proximity to the auto industry, strength of local plastics demand, quality and skill of local labor force, and Michigan's central location to nationwide customers. Those respondents who felt that other locations are superior to Southeast Michigan have identified Indiana, Ohio, the Carolinas, and states in the south of the United States as preferred locations. Smaller firms were more equally divided in their ratings, while larger companies judged this area superior by a margin of 2 to 1. The reasons for choosing other areas over ours have again centered around the perception of higher business expenses in Michigan.

These preferred localities, and reasons for rating other states superior to Southeast Michigan, are nearly identical to the answers offered in 1981 by plastics firms in assessing location disadvantages. It should be noted, however, that just as in 1981 the question on the survey is worded as an opinion question, not as a question of actual intent. Clearly a large number of plastics firms consider Southeast Michigan the best location for their operations. An additional research project that actually traced plastics firms that had left the area and determined the reasons for their departure might provide more insight into location decisions than the opinion questions incorporated in this survey.

In response to question 23, most firms indicated that they do not intend to change their product lines in the next five years (65 percent). Of the 35 percent who do intend to change their product lines, only one firm said they planned to drop a product, with the rest anticipating adding products to their current lines. This tends to confirm previous survey results that indicated some interest in diversification.

The next series of questions addresses the subject of exports. Over half (56 percent) of the respondents indicated that they do no exporting at all. Those firms that do export do so at a minimal level, the average for all responses being slightly over 3 percent of production (2.4 percent if one large exporter is excluded from the sample). Three-fourths of these firms have not changed this exporting percentage over the last three years, and three-fourths anticipate they will be exporting this same percentage in three years. Only one firm projected a decline in their export percentage, and 23 percent felt they would be exporting more in 1989. Canada was the most frequently targeted export market, followed by Mexico and western Europe. No strong correlation between firm size and export propensity could be discovered in the available data though recent studies have generally indicated that among U.S. firms medium-sized companies are the most likely to export. This appears to be another area where the Detroit Chamber might be able to promote plastics due to the nearness of Canadian markets and the Autopact agreement between the United States and Canada. Export promotion could be coordinated through several existing groups within the Chamber. The final question on the survey revealed again that most plastics firms are not aware of the many resources available to them locally. This item received the lowest response rate of any question in the survey when 50 percent of the respondents answered that they do not know if they are

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listed in the MIPIE. Forty-one percent of all respondents knew that they were not listed, while the remaining 12 percent of the respondents indicated they are listed in this data base.

APPENDIX 1

1. What type(s) of plastic processes do you use in manufacturing? (Example: Blow molding, injection molding, extrusion, fabrication, etc.)
2. Describe your current plastics product line.
3. What raw plastics materials do you use in your production process?
4. What is your approximate level of annual usage of raw plastics in dollars and in pounds (if appropriate)?
5. Are any of your major suppliers of raw plastics located in other states? If yes, where are they located?
6. How many production facilities do you have in SE Michigan?
7. Are your facilities operating at full capacity? At what level are they operating?
8. What are your estimated sales for 1986?
9. Has this increased, decreased, or maintained the same level during the last three years?
10. Do you project an increase, decrease, or maintenance of this sales level over the next three years?
11. How many people does your SE Michigan operation employ?
12. How many, and what kind, of plastics related machines does your firm use today in production? (pressure, tonnage, ounce capacity, etc.)
13. At the present time, what industries are your major customer groups?
14. Have these customer groups changed in the last 3 years? How?
15. Do you anticipate your customer groups changing over the next 3 years? That is, will there be different buyers of your product in 1991 than now?
16. In your opinion, in what areas are emerging or "cutting edge" trends currently taking place in the plastics industry? (i.e., heat resistants, composites, bonding of plastic with metal or ceramics, statistical process control, just in time inventory, or others.)
17. What future implications do these trends hold; that is, where is the plastics industry in SE Michigan going?
18. What, in your opinion, is the market potential for your plastics products?
19. Can you identify any specific ways in which the Greater Detroit Chamber of Commerce can promote or in any other way help the plastics industry in SE Michigan?
20. Are you aware of an institute for plastics technology or other plastics research center in SE Michigan? 20a. Where? 20b. Describe the research taking place. 20c. Has it been helpful to your operation?
21. Can you identify any specific training needs your company is currently experiencing?
22. Do you consider any location outside of SE Michigan to be a superior location for plastics manufacturers such as your company?
23. Do you *intend* to drop or add any products from your current product line within the next five years?
24. Approximately what percentage of your plastics products are exported from the U.S.? What are your largest export markets?
25. Has your export percentage increased, decreased, or remained the same over the last three years?
26. Do you think the volume of your exports will increase, decrease, or remain about the same in the next five years?
27. Are you currently listed in the Michigan Products Information Exchange (MIPIE), a free statewide computerized marketing tool?

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Economic Condition and Performance of Michigan Medium-Sized MSAs

by DR. HAROLD WOLMAN, *interim director, Center for Urban Studies, and professor, Department of Political Science, Wayne State University*

Michigan's medium-sized metropolitan areas reflect sharply divergent economic condition and performance. In terms of comparison with the U.S. economy as a whole between 1979 and 1986, none of the MSAs performed particularly well. While Ann Arbor, Kalamazoo, and Benton Harbor had percentage point increases in the unemployment rate below that the the United States, none of the MSAs exceeded the nation in rate of total employment growth (although Ann Arbor and Grand Rapids fell only slightly below the national average) nor in growth in income from employment per worker (although Kalamazoo fell only slightly below the average).

Comparing the MSAs to the performance of the Michigan economy between 1979 and 1986 with respect to percentage point increase in unemployment rate, rate of total employment growth, and rate growth of income from employment per worker, two distinct groups can be identified. One group, which is characterized as successful performers, consisted of Ann Arbor, Kalamazoo, Lansing, and Grand Rapids. This group outperformed the state as a whole on the three performance indicators. A second group, termed poor performers, fell below the state as a whole. This group consisted of Saginaw, Jackson, Battle Creek, Muskegon, Benton Harbor, and Flint.

Turning from economic performance as discussed above, defined in terms of *changes* in economic indicators between 1979 and 1986, to economic condition, defined in terms of *level* of economic indicators in 1986, four groups can be identified. The first group, composed of Ann Arbor and, in the near future, likely to be joined by Kalamazoo, can be termed prosperous (low unemployment, high income). The second group – Grand Rapids, Lansing, and, at present, Kalamazoo – has relatively low unemployment but also relatively low income. The third group, which includes Flint and Saginaw, reflects the mirror image of the second; it has high income but also high unemployment. The final group, consisting of Benton Harbor, Battle Creek, Jackson, and Muskegon, reflects chronic economic distress with both high unemployment and relatively low income.

In comparing the successful performers to the poor performers, the importance of industrial structure was apparent. The poor performers began the period with an economy more heavily dominated by manufacturing than did the successful performers. However, domination by manufacturing did not inevitably doom an area to poor performance (Grand Rapids was a conspicuous exception). Nor did it appear that it was the national decline in manufacturing simply playing itself out proportionately on local economics which accounted for the poor performance of these areas. The poor performers experienced much larger *percentage* declines in manufacturing employment than did the successful performers or the nation as a whole.

The successful performers also differed from the poor performers in terms of measures of labor force quality (education levels and occupational structure). The successful performers had a much higher percentage of college graduates, a higher percentage of high school graduates, and a much lower percentage of semiskilled and unskilled workers than did the poor performers.

ECONOMIC PERFORMANCE, 1979–1986

Michigan's medium-sized Metropolitan areas (all the MSAs excluding Detroit) were ranked in terms of performance between 1979 and 1986 with respect to percentage point change in unemployment rate, percentage change in total employment, and percentage change in income from employment per worker. The rankings, which include the rank for the entire state, are presented in Table 1.

This research was supported by the Michigan Department of Commerce.

In the July-August issue the article by Dr. Kurt Gorwitz, "A Profile of Genesee County's Residents" was derived from the Genesee County Database Study for 1986, Project for Urban and Regional Affairs, The University of Michigan-Flint. This study was sponsored by the Mott Children's Health Center, The Mott Foundation, The City of Flint, The Flint Area Health Foundation, and the GLS Health Planning Agency.

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TABLE 1
Metropolitan Area Economic Performance
(Rankings in parenthesis)

	% Point change, unemployment rate, 1979–86[1]	% Change, total employment, 1979–86[2]	% Change, income from employment per worker, 1979–86	Total rankings[3]	Composite rankings
Ann Arbor	0.4 (1)	11.90 (1)	33.75 (4)	6	(1)
Battle Creek	1.9 (6)	1.22 (6)	21.43 (11)	23	(9)
Benton Harbor	0.2 (2)	-5.90 (9)	29.58 (8)	19	(6)
Flint	1.9 (6)	-6.80 (10)	33.81 (3)	19	(6)
Grand Rapids	2.1 (9)	10.22 (2)	33.54 (5)	16	(4)
Jackson	2.0 (8)	-9.47 (11)	27.79 (9)	28	(10)
Kalamazoo	0.9 (3)	4.12 (4)	37.48 (1)	8	(2)
Lansing	1.8 (5)	5.78 (3)	34.50 (2)	10	(3)
Muskegon	2.1 (9)	3.44 (7)	31.76 (6)	22	(8)
Saginaw	3.3 (11)	-4.54 (8)	25.98 (10)	29	(11)
Michigan	1.3 (4)	-0.64 (5)	31.46 (7)	16	(5)

SOURCE: Author
1. 1986 data is monthly average for first nine months.
2. 1986 data is for September.
3. Sum of rankings from first three columns.

The ten medium-sized MSAs can be divided into a group of four good performers which outperformed the state as a whole (Ann Arbor, Kalamazoo, Lansing, and Grand Rapids) and a group of six poor performers whose performance fell below that of the state as a whole (Saginaw, Jackson, Battle Creek, Muskegon, Benton Harbor, and Flint). From 1979-86 the good performers averaged an increase in unemployment rate of 1.1 percentage points compared to 1.9 percentage points for the poor performers; they also increased total employment by an average of 8.01 percent, compared to an average decline of 5.23 percent for the poor performers. Between 1979 and 1984, the last year for which data are available, the good performers averaged increases in income from employment per worker of 34.82 percent compared to 28.39 percent for the poor performers. The rankings for the good performers were quite consistent across the indicators. Ann Arbor, Kalamazoo, and Lansing ranked in the top four for each of the three indicators. Grand Rapids, however, was in the top four for only one of the three indicators—employment growth—and, in fact, had the third highest increase in unemployment rate. Each of the poor performers ranked in the bottom six across all three indicators with the exception of Benton Harbor, which had the second lowest rate of unemployment increase, and Flint, which had the third highest rate of increase in income from employment per worker.

PERFORMANCE DURING THE RECESSION

During the 1979-82 period Michigan's unemployment rate increased by 7.7 percentage points, compared to an average of 5.6 points for the four good performers. Ann Arbor and Kalamazoo had the lowest increase in unemployment rates (4.4 and 5.3 points respectively). It is nonetheless worth noting that the increase in the unemployment rate in each of these "successful" performing areas exceeded the U.S.

TABLE 2
Unemployment Rate

Michigan MSAs	Level (%)			% Point change		
	1979	1982	1986[1]	1979–82	1982–86	1979–86
Ann Arbor	5.5	9.9	5.1	4.4	-4.8	0.4
Battle Creek	7.4	16.1	9.3	8.7	-6.8	1.9
Benton Harbor	9.0	16.1	9.2	7.1	-6.9	0.2
Detroit	8.0	15.9	8.4	7.9	-7.5	0.4
Flint	8.9	21.1	10.8	12.2	-10.3	1.9
Grand Rapids	5.5	11.9	7.6	6.4	-4.3	2.1
Jackson	7.3	16.1	9.3	8.8	-6.8	2.0
Kalamazoo	5.3	10.6	6.2	5.3	-4.4	0.9
Lansing	5.4	11.7	7.2	6.3	-4.5	1.8
Muskegon	8.8	18.0	10.9	9.2	-7.1	2.1
Saginaw Bay City-Midland	6.9	16.0	10.2	9.1	-5.8	3.3
MSA average	7.1	14.9	8.6	7.8	-6.3	1.5
Michigan	7.8	15.5	9.1	7.7	-6.4	1.3
US	5.8	9.7	7.2	3.9	-2.5	1.4
Average						
Good performers	5.4	11.0	6.5	5.6	-4.5	1.1
Poor performers	8.1	17.2	10.0	9.2	-7.3	1.9

SOURCE: Michigan Employment Security Commission, special release
1. 1986 data is monthly average for first nine months.

TABLE 3
Total Wage and Salary, Nonagricultural Employment

Michigan MSAs	Level (000)				% Change		
	1979	1982	1985	1986[1]	1979-82	1982-86	1979-86
Ann Arbor	142.0	130.7	149.2	158.9	-7.96	21.58	11.90
Battle Creek	57.4	52.5	54.2	56.7	-8.54	8.00	-1.22
Benton Harbor	61.4	55.9	59.0	60.6	-13.20	8.41	-5.90
Detroit	1818.8	1578.6	1750.0	1824.5	-13.21	15.58	0.31
Flint	185.3	159.4	171.2	172.7	-13.98	8.34	-6.80
Grand Rapids	271.0	261.0	293.4	298.7	-3.69	14.44	10.22
Jackson	54.9	47.8	48.2	49.7	-12.93	3.97	-9.47
Kalamazoo	97.0	91.8	97.2	101.0	-5.36	10.02	4.12
Lansing	181.8	175.9	188.6	192.3	-3.25	9.32	5.78
Muskegon	58.2	52.2	55.2	56.2	-10.31	7.66	-3.44
Saginaw-Bay City-Midland	156.3	137.4	145.1	149.2	-12.09	8.59	-4.54
MSA average					-9.50	10.54	0.09
Michigan	3637.1	3193.3	3505.2	3613.7	-12.20	13.17	-0.64
US	89823.0	89566.0	97614.0	100977.0	0.29		12.42
Average							
Good performers	173.0	164.9	182.1	187.7	-5.06	13.84	8.01
Poor performers	96.1	84.2	88.8	90.9	-11.84	7.50	-5.23

SOURCE: Michigan Employment Security Commission, special release.
1. 1986 data is monthly average for first nine months.

increase of 3.9 points. The six poor performers averaged an increase of 9.2 percentage points, lead by Flint whose unemployment rate increased by 12.2 points (see Table 2).

Total employment fell during this period by an average of 5.06 percent for the good performers compared to 11.84 percent for the poor performers. Lansing and Grand Rapids experienced the lowest rates of employment decline (3.25 percent and 3.69 percent respectively), while Flint and Benton Harbor had the greatest declines (-13.98 percent and -13.20 percent respectively, see Table 3).

Income from employment per worker rose by 16.83 percent in Michigan between 1979 and 1982. The good performers averaged an increase of 19.09 percent (led by Kalamazoo with 22.2 percent and Ann Arbor with 20.5 percent) compared to an increase of 15.67 percent for the poor performers. Battle Creek and Flint each had an increase of only 13.21 percent, the lowest. (See Table 4.)

PERFORMANCE DURING THE RECOVERY

From 1982 through September 1986, Michigan's unemployment rate fell by 6.4 percentage points. The decline in unemployment for the poor performers, which had experienced above average increase in unemployment during the recession, was even more dramatic; the unemployment rate fell by 7.3 points. Indeed, Flint's unemployment rate fell by 10.3 percentage points. By comparison, the unemployment rate of the four good performers fell by an average of 4.5 percentage points (see Table 2).

However, the recovery of the poor performers was much less impressive with respect to their ability to generate

TABLE 4
Income from Employment per Worker

Michigan MSAs	1979	1982	1984	% Change		
				1979-82	1979-84	1982-84
Ann Arbor	18.5	22.3	24.8	20.50	33.75	11.00
Battle Creek	18.2	20.7	22.2	13.21	21.43	7.26
Benton Harbor	16.2	19.3	21.0	18.89	29.58	8.99
Detroit	20.3	23.3	26.1	14.45	28.34	12.14
Flint	21.7	24.5	29.0	13.21	33.81	18.20
Grand Rapids	16.5	19.3	22.1	16.80	33.54	14.33
Jackson	17.7	20.8	22.6	17.76	27.79	8.51
Kalamazoo	17.2	21.0	23.6	22.20	37.48	12.50
Lansing	17.3	20.2	23.3	16.85	34.50	15.10
Muskegon	16.8	19.5	22.1	16.31	31.76	13.29
Saginaw-Bay City-Midland	19.8	22.7	25.0	14.65	25.98	9.89
MSA average	18.2	21.2	23.8	16.80	30.65	12.00
Michigan	18.5	21.7	24.4	16.83	31.46	12.53
US	16.4	20.4	22.9	24.10	39.27	12.23
Average						
Good performers	17.4	20.7	23.4	19.09	34.82	13.23
Poor performers	18.4	21.2	23.6	15.67	28.39	11.02

SOURCE: Bureau of Economic Analysis, Regional Economic Information System.

employment. While the good performers increased employment by an average of 13.84 percent, slightly in excess of the state increase of 13.17 percent, the poor performers averaged only a 7.5 percent increase. Indeed, the Jackson MSA was able to muster a gain of only 3.97 percent in employment compared to Ann Arbor MSA's increase of 21.58 percent. This suggests that the recovery of the poor performers in terms of unemployment rate declines resulted partly from labor adjustments such as labor force outmigration and/or declines in labor force participation rates (see Table 3.)

Income from employment per worker increased slightly more for the successful performers (13.23 percent) during the recovery period than for the poor performers (11.02 percent). However, Flint, a poor performer, experienced the most rapid gains (18.26 percent); four other poor performers had increases well under that of the state as a whole (12.5 percent): Battle Creek (7.26 percent), Jackson (8.51 percent), Benton Harbor (8.99 percent), and Saginaw (9.89 percent). (See Table 4.)

SECULAR CHANGE OVER THE 1979-1986 PERIOD

The previous two sections have described the economic performance of Michigan's medium-sized MSAs over the course of the economic cycle of recession (1979-82) and recovery (1982-86). We now turn to a discussion of the entire period, thus examining secular change from one peak (1979) to another (1986).

During the 1979 through September 1986 period, Michigan's unemployment rate increased 1.3 percentage points compared to 1.4 points for the United States as a whole. Only Ann Arbor (-0.3 points) had a decline in the unemployment rate, and only Benton Harbor and Kalamazoo had increases lower than that of the state. But it should also be kept in mind that Benton Harbor started the period with the highest unemployment rate and at the end of the period, even with its decline, still had one of the state's higher unemployment rates, slightly higher than that of the state as a whole. The Saginaw area had a particularly high increase in unemployment (3.3 percentage points), followed by Muskegon (2.1 points) and Grand Rapids (2.1 points), although Grand Rapids started the period with one of the lowest rates of unemployment. (See Table 2.)

Over the course of the 1979-86 period, total employment in Michigan fell by 0.64 percent compared to an increase of 12.42 percent nationally. The four good performers all added jobs, led by Ann Arbor (11.90 percent) and Grand Rapids (10.22 percent), while all six of the poor performers experienced absolute declines in employment. Particularly serious losses were suffered by Jackson (-9.47 percent), Flint (-6.80 percent), and Benton Harbor (-5.90 percent). (See Table 3.)

Income from employment per worker increased by 31.46 percent in the State of Michigan between 1979 and 1984 compared to 39.27 percent for the United States. Only Kalamazoo (37.48 percent) approached the U.S. average. Battle Creek (21.43 percent), Saginaw (25.98 percent), and Jackson (27.79 percent) had the lowest rates of increase in income per worker. These rates reflected very low increases in total income from employment (12.12 percent, 15.18 percent, and 10.10 percent respectively) moderated on a per worker basis by declines in total employees (see Table 4).

ECONOMIC CONDITION OF MEDIUM-SIZED MSAS

The previous discussion has focused on economic performance. It has been concerned with *changes in* rather than *levels of* area economic variables. Areas which performed well are not necessarily better off; they may have started the period with serious economic problems. Benton Harbor, for example, had had the second lowest increase in percentage point unemployment (0.2 points) of all the MSAs, but it had the highest unemployment rate (9.0 percent) at the start of the period in 1979. As a consequence, despite it's relatively small increase in unemployment, it still had the sixth highest unemployment rate in 1986. Similarly, areas which performed badly are not necessarily worse off. Grand Rapids had the next to the highest increase in unemployment rate, but since it started the period with the second lowest rate (5.5), it fell only to fourth in the rankings in 1986 (7.6 percent).

Kalamazoo, Lansing, Grand Rapids, and Ann Arbor started the period with the lowest unemployment rates. The four areas with the lowest increases (best performance) in unemployment between 1979 and 1986 were Ann Arbor, Benton Harbor, Kalamazoo, and Lansing. Because of its high initial level of unemployment, however, Benton Harbor continued to have high unemployment rates in 1986. Indeed, the four MSAs with the lowest unemployment rates in 1986 were the same four which had the lowest rate in 1979.

The three areas which began the period with the highest unemployment rates (Benton Harbor, Flint, and Muskegon) had divergent performances. Flint and Benton Harbor had relatively low increases in unemployment, but still ranked high (9 and 5 respectively) among the ten MSAs in unemployment in 1986. Muskegon, on the other hand, had the second highest increase in unemployment, and, as a consequence, fell from the eighth highest unemployment rate in 1979 to the tenth highest (and worst) in 1986. Meanwhile, Saginaw, the area with the worst economic performance (a 3.3 percentage point increase in unemployment), fell from the middle of the pack in 1979 to the eighth worst rate of unemployment in 1986 (see Table 2).

The rankings on income from employment per worker tell a different story. In 1979 the MSAs with the highest income from employment per capita were Flint, Saginaw, Ann Arbor, and Battle Creek, while Benton Harbor and Grand Rapids had the two lowest levels. As of 1984 Flint, Saginaw, and Ann Arbor again were at the top, but Kalamazoo, which had the highest rate of income growth, had jumped from seventh to fourth, switching places with Battle Creek which had the lowest rate of income growth (see Table 4).

The data provide an interesting snapshot of the present condition of Michigan MSAs. Dividing the MSAs according to whether they fall above or below the state unemployment rate and income from employment per capita, four groups can be identified. Ann Arbor emerges as the area with the best present status—high income and low unemployment—and its performance between 1979 and 1986 suggests its prospects for retaining that position are excellent.

Grand Rapids, Lansing, and Kalamazoo, on the other hand, are characterized by low unemployment rates but also low levels of income from employment per worker (relative to the state average). However, Kalamazoo experienced particularly rapid *growth* in income from employment per worker between 1979 and 1984 and by the end of that period fell only slightly below the state average. It thus appears that Kalamazoo will shortly be able to be grouped with Ann Arbor as low unemployment, high income urban areas, both of which

are also experiencing above average (relative to the state) employment growth.

Lansing and Grand Rapids also experienced slightly above average gains in income from employment per worker but remain well below the state average. Grand Rapids presents a particularly interesting picture. It is an area with relatively low unemployment, high employment growth, but low income from employment per worker, a pattern more characteristic of south and southwestern metropolitan areas than northern areas. All three of the areas plus Ann Arbor experienced rates of employment growth from 1979-86 in excess of that of the state.

Flint and Saginaw are areas characterized by high income from employment per worker coexisting with high unemployment rates. Both also had absolute declines in total employment over the 1979-86 period. Flint in particular appears to be a near mirror image of Grand Rapids. Of all the MSAs, it had the second highest unemployment rate in 1986 (Grand Rapids was the fourth lowest), the highest income from employment per worker (Grand Rapids had the second lowest), and the second worst rate of total employment change (Grand Rapids had the second best). Flint and Saginaw are areas whose economy is dominated by high-paying jobs but in industries (the auto industry) in which employment has declined in secular terms.

Finally, Benton Harbor, Battle Creek, Jackson, and Muskegon form the final group of areas in the unenviable position of being characterized by both high unemployment rates and low income from employment over the 1979-86 period, although Battle Creek's decline was slight and only marginally worse than the state average. All four of these areas (with the exception of Benton Harbor's relatively good performance in terms of increases in unemployment rate) also had below average (with respect to the state) performances between 1979 and 1986 in terms of both *change* in the unemployment rate and *change* in income from employment per worker.

Data on new incorporations reinforce the MSA classification discussed above (see Table 5). The rate of new incorporations in the state as a whole was 2.84 per 1000 population in 1985. Of the MSAs Ann Arbor had the highest rate (3.45), followed by two of the three low-unemployment and low-income areas: Lansing (3.24) and Grand Rapids (2.77). The four long-term decline areas all had very low rates: Battle Creek (1.37), Muskegon (1.77), Benton Harbor (1.87), and Jackson (2.15), as did Saginaw (1.55) and Flint (2.33). Kalamazoo is the only divergent case; despite an above state-average rate of employment growth from 1979-86, it had a new incorporation rate of only 2.24 in 1985 (still the fourth highest of the MSAs, but well below the state rate).

TABLE 5
New Incorporations

Michigan MSAs	1985	Per 000 population
Ann Arbor	907.0	3.45
Battle Creek	187.0	1.37
Benton Harbor	305.0	1.87
Detroit	17361.0	3.02
Flint	968.0	2.33
Grand Rapids	1757.0	2.77
Jackson	399.0	2.15
Kalamazoo	482.0	2.24
Lansing	1354.0	3.24
Muskegon	278.0	1.77
Saginaw Bay City-Midland	632.0	1.55
MSA average		2.42
Michigan	25787.0	2.84
US		
Average		
Good performers	1125.0	2.92
Poor performers	446.5	1.82

SOURCE: Michigan Department of Commerce, Business Information.

ECONOMIC WELL-BEING OF CITIZENS

The discussion thus far has dealt with the performance and condition of area economies. Obviously, there is a close relationship between the functioning of the area economy and the economic well-being of the area's citizens. However, the two are not synonymous. Personal income, a measure of economic well-being, includes income from transfer payments and unearned income as well as income from employment. As of 1983 Ann Arbor had the highest income per capita ($10,637), followed by Kalamazoo ($9,695) and Flint ($9,542). In all three areas per capita income was above that of both Michigan and the United States. The three lowest areas in terms of per capita income were Muskegon ($7,699), Benton Harbor ($8,112), and Jackson ($8,378). (See Table 6.) In general, this pattern is consistent with that of unemployment rates, another measure of citizen well-being. Areas with high per capita income had low unemployment rates and vice versa. The exception is Flint which had both high per capita income and high unemployment.

TABLE 6
Per Capita Income

Michigan MSAs	1979 (1983$)	1983	% Change 1979-83
Ann Arbor	11941.0	10637.0	10.92
Battle Creek	9893.0	8810.0	10.95
Benton Harbor	9224.0	8112.0	12.06
Detroit	11582.0	9979.0	13.84
Flint	10909.0	9542.0	12.53
Grand Rapids	10204.0	9099.0	10.83
Jackson	9608.0	8378.0	12.80
Kalamazoo	10659.0	9695.0	9.04
Lansing	10439.0	9470.0	9.28
Muskegon	8723.0	7699.0	11.74
Saginaw Bay City-Midland	10122.0	8803.0	13.05
MSA average	10300.4	9111.1	11.55
Michigan	10548.0	9175.0	13.02
US	10013.0	9496.0	5.16
Average			
Good performers	10819.8	9725.3	10.02
Poor performers	9746.5	8567.0	12.19

SOURCE: Bureau of Economic Analysis, Regional Economics Information System.

ACCOUNTING FOR ECONOMIC PERFORMANCE AND CONDITION

What kinds of characteristics distinguished the good performers from the poor performers? To what extend did an area's history, as reflected in its industrial structure at the beginning of the period of the analysis (1979), determine economic performance? Since the U.S. economy as a whole

TABLE 7
Nonagricultural Employment by Place of Work

Michigan MSAs	Manufacturing (000)			% Change			% Labor force		
	1979	1982	1985	1979–82	1982–85	1979–85	1979	1982	1985
Ann Arbor	47.0	32.0	36.7	-31.91	14.69	-21.91	33.10	24.48	24.60
Battle Creek	20.6	15.6	14.9	-24.27	-4.49	-27.67	35.89	29.71	27.49
Benton Harbor	25.1	19.4	20.4	-22.71	5.15	-18.73	38.98	34.70	34.58
Detroit	587.8	425.1	479.0	-27.68	12.68	-18.51	32.32	26.93	27.37
Flint	79.8	59.2	64.9	-25.81	9.63	-18.67	43.07	37.14	37.91
Grand Rapids	96.0	84.5	99.0	-11.98	17.16	3.13	35.42	32.38	33.74
Jackson	16.7	12.3	12.8	-26.35	4.07	-23.35	30.42	25.73	26.56
Kalamazoo	31.1	27.0	29.1	-13.18	7.78	-6.43	32.06	29.41	29.94
Lansing	40.8	33.9	39.3	-16.91	15.93	-3.68	22.44	19.27	20.84
Muskegon	21.7	17.3	19.4	-20.28	12.14	-10.60	37.29	33.14	35.14
Saginaw-Bay City-Midland	59.6	43.3	46.7	-27.35	7.85	-21.64	38.13	31.51	32.18
MSA average				-22.59	9.33	-15.28	34.46	29.49	30.03
Michigan	1160.2	876.9	984.1	-24.42	12.22	-15.18	31.90	27.46	28.08
US	21040.0	18781.0	19314.0	-10.74	2.84	-8.20	23.42	20.97	19.79
Average									
Good performers	53.7	44.4	51.0	-18.50	13.89	-7.22	30.76	26.39	27.28
Poor performers	37.3	27.9	29.9	-24.46	5.73	-20.11	37.29	31.99	32.31

SOURCE: Michigan Employment Security Commission, special release

is experiencing a decline in manufacturing employment as a share of total employment, it is reasonable to expect that those areas whose economy was heavily dominated by manufacturing would also suffer from poor performance. Indeed, this proved to be the case; the poor performers began the period with 37.29 percent of total employment (and 47.81 percent of total income) in manufacturing compared to 30.76 percent (and 40.4 percent of total income) for the successful performers. However, domination by the manufacturing sector obviously did not inevitably doom urban areas to poor performance. Grand Rapids, one of the successful performers (indeed it was the area with the highest rate of growth in total employment), began the period with 35.42 percent of its employment in manufacturing compared to 31.9 percent for the State of Michigan and 23.42 percent for the United States as a whole.

All MSAs in the state, with the exception of Grand Rapids, lost manufacturing employment in the 1979-85 period. However, the poor performers lost 20.11 percent of their manufacturing employment while the successful performers lost only 7.22 percent. Data on income from manufacturing reflects an even greater divergence of experience. The poor performers increased income from manufacturing by only 9.59 percent between 1979 and 1984 compared to 34.08 percent for the successful performers. Note that the decline in manufacturing employment as a percentage of total employment was much more marked than the decline in manufacturing income as a percentage of total income. The implication is not that manufacturing is declining in importance in area economies (though it clearly is in some) but that manufacturing is becoming less labor intensive.

TABLE 8
Services Employment by Place of Work

Michigan MSAs	Total Services			% Change			Services as % of total employment		
	1979	1982	1985	1979–82	1982–85	1979–85	1979	1982	1985
Ann Arbor	68.8	72.1	80.5	4.80	11.65	17.01	48.45	55.16	53.95
Battle Creek	23.7	24.9	26.3	5.06	5.62	10.97	41.29	47.43	48.52
Benton Harbor	22.9	21.7	23.1	-5.24	6.45	0.87	35.56	38.82	39.15
Detroit	667.0	675.1	733.8	1.21	8.70	10.01	36.67	42.77	41.93
Flint	57.2	55.2	57.5	-3.50	4.17	0.52	30.87	34.63	33.59
Grand Rapids	90.0	92.0	100.9	2.22	9.67	12.11	33.21	35.25	34.39
Jackson	20.2	19.2	19.8	-4.95	3.13	-1.98	36.79	40.17	41.08
Kalamazoo	39.5	39.5	41.2	0.00	4.30	4.30	40.72	43.03	42.39
Lansing	96.5	100.0	104.1	3.63	4.10	7.88	53.08	56.85	55.20
Muskegon	20.0	20.1	19.6	0.50	-2.49	-2.00	34.36	38.51	35.51
Saginaw-Bay City-Midland	51.3	51.1	53.4	-0.39	4.50	4.09	32.82	37.19	36.80
MSA average	0.0	0.0	0.0	0.30	5.44	5.80	38.53	42.71	42.05
Michigan	1402.2	1380.0	1486.5	-1.58	7.72	6.01	38.55	43.22	42.41
US	38034.0	40214.0	44342.0	5.73	10.27	16.59	42.34	44.90	45.43
Average									
Good performers	73.7	75.9	81.7	2.66	7.43	10.32	43.87	47.57	46.48
Poor performers	32.6	32.0	33.3	-1.42	3.56	2.08	35.28	39.46	39.11

SOURCE: Michigan Employment Security Commission, special release

TABLE 9
Occupation of Employed Labor Force, 1980

Michigan MSAs	Total employment	Managerial and professional	Skilled	Operators	% Managerial and professional	% Skilled	% Semi- and unskilled
Ann Arbor	128 6	41 4	11 3	17 8	32 19	8 81	13 86
Battle Creek	57 6	11 0	7 2	13 0	19 05	12 43	22 60
Benton Harbor	69 3	14 4	9 3	15 8	20 84	13 38	22 74
Detroit	1824 8	406 7	238 7	355 7	22 29	13 08	19 49
Flint	171 8	30 5	25 6	47 9	17 76	14 92	27 88
Grand Rapids	274 4	56 3	36 8	60 7	20 51	13 41	22 14
Jackson	60 1	12 1	7 8	13 5	20 20	13 00	22 43
Kalamazoo	98 9	24 6	11 2	17 1	24 89	11 32	17 25
Lansing	191 0	45 7	20 3	31 2	23 96	10 64	16 36
Muskegon	61 5	11 3	8 4	15 2	18 31	13 61	24 67
Saginaw Bay City-Midland	168 8	32 1	23 9	33 8	19 04	14 13	20 04
MSA average					21 73	12 61	20 86
Michigan	3750 7	733 2	458 5	656 0	19 55	12 22	17 49
US	97639 4	22151 6	12594 2	17359 3	22 69	12 90	18 29
Average							
Good performers	173 2	42 0	19 9	31 7	25 39	11 05	17 40
Poor performers	98 2	18 6	13 7	23 2	19 20	13 58	23 39

SOURCE Bureau of the Census, *1980 Census of Population, General Social and Economic Characteristics, Michigan* (Washington, D C 1983), PC80-1-C24, Table 178

The implications of this are important to draw out While it is true that the poor performers started the period with a higher percentage of employment in manufacturing, their inferior performance cannot be explained simply by reference to a high *concentration* of employment in a sector which was declining naturally These areas did not merely suffer a higher loss because the same proportionate decline was applied to a higher manufacturing employment base, they suffered losses because they lost a higher *share* of their manufacturing employment than did the other areas Although it is possible that a further disaggregation of manufacturing into more discrete subsectors might mitigate this conclusion, it is likely that the poor performance of these areas reflected adverse competitive shifts as well as industrial structure (See Table 7)

The service sector, as expected, presents a mirror image The successful performers began the period with 43 87 percent of employment in the service sector compared to 35 28 percent for the poor performers From 1979-85 the former increased service employment by 10 32 compared to only 2 08 percent for the poor performers Ann Arbor had the highest rate of increase (17 01 percent), which more than offset in absolute terms its 21 91 percent decline in manufacturing (see Table 8)

The two groups of performers also differed in terms of labor force skill levels as reflected in occupational structure and educational attainment The successful performers averaged 25 39 percent of their labor force in managerial and professional occupations in 1980 compared to 19 20 percent for the poor performers They also had only 17 40 percent of their labor force in semiskilled and unskilled occupations compared to 23 39 percent in those occupations for the poor performers (see Table 9) The same pattern held in terms of education In the successfully performing MSAs, 76 1 percent of residents over age twenty-five had completed twelve or more years of education and 19 0 percent had completed sixteen or more compared to 67 0 percent and 11 9 percent respectively in the poorly performing MSAs (see Table 10) In both cases Grand Rapids, a successfully performing MSA with heavy manufacturing employment, had a substantially lower skilled labor force than did the other three successful performers Nonetheless, on the occupational measures it had a *more* skilled labor force than all but one of the six poor performers, and on the educational measures, the educational attainment of the labor force exceeded all the poor performers

Differences in labor costs are frequently cited as important factors in economic performance In order to compare wage costs among areas, it is first necessary to control for industrial structure, thus enabling analysts to compare the actual cost of labor within a particular sector rather than the average

TABLE 10
Education

Michigan MSAs	% 12 or more years	% 16 or more years
Ann Arbor	80 9	15 2
Battle Creek	67 8	11 9
Benton Harbor	64 8	13 3
Detroit	67 0	14 0
Flint	67 8	10 9
Grand Rapids	70 4	15 9
Jackson	69 2	12 2
Kalamazoo	75 8	23 0
Lansing	77 3	21 7
Muskegon	65 3	10 6
Saginaw Bay City-Midland	67 3	12 6
MSA average	70 3	14 7
Michigan	68 0	14 3
US	66 5	16 2
Average		
Good performers	76 1	19 0
Poor performers	67 0	11 9

SOURCE Bureau of the Census, *1980 Census of Population, General Social and Economic Characteristics, Michigan* (Washington, D C 1983), PC80-1-24C, Table 56

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cost of labor across all sectors. The latter comparison is susceptible to misinterpretation, for an area may have a heavy presence in a high wage, unionized, industrial subsector, but these high wages may not necessarily carry over to other sectors. Whether they do or not is an empirical question.

Unfortunately, wage cost data are available for only a few manufacturing sectors and most of these are clearly dominated by the auto industry. In the nonelectrical machinery sector, the poor performers averaged marginally higher average hourly earnings than did the successful performers ($11.02 per hour compared to $10.71), though both groups of areas were well under the state average hourly earnings ($12.16), which were skewed heavily upward by Detroit-area wages ($13.41). Ann Arbor had the lowest wage rate, only 71 percent of the state average. Since Ann Arbor was the most successful performer, this might suggest that its low wage cost was a contributor. However, the next lowest average hourly earnings in nonelectrical machinery were registered by Jackson, 81 percent of the state average. Jackson was one of the poorest performers.

In the fabricated metals sector, the poor performers actually had lower average hourly earnings than did the successful performers. Once again, Ann Arbor had relatively low costs equal to only 81 percent of the state average. However, Benton Harbor, Battle Creek, and Muskegon all had lower average hourly earnings. Grand Rapids had average hourly earnings above that of the state average in both nonelectrical machinery and fabricated metals, suggesting that its relatively low standing in income from employment per worker may be due more to its industrial structure than to its low wages (see Table 11).

TABLE 11
Average Hourly Earnings, 1984 ($)

Michigan MSAs	Machinery (non-electrical)	Ratio: Michigan	Fabrication metals	Ratio: Michigan
Ann Arbor	8.66	0.712	9.69	0.810
Battle Creek	12.12	0.997	9.31	0.778
Benton Harbor	10.25	0.843	9.42	0.787
Detroit	13.41	1.103	12.14	1.014
Flint	NA	NA	15.47	1.292
Grand Rapids	12.45	1.024	12.48	1.043
Jackson	9.85	0.810	10.39	0.868
Kalamazoo	9.91	0.815	14.40	1.203
Lansing	11.83	0.973	9.74	0.814
Muskegon	11.84	0.974	7.72	0.645
Saginaw-Bay City-Midland	NA	NA	10.39	0.868
MSA average	NA	NA	11.01	0.920
Michigan	12.16	1.000	11.97	1.000
US				
Average				
Good performers	10.71	0.881	11.58	0.967
Poor performers	11.02	0.906	9.21	0.769

SOURCE: Bureau of Labor Statistics, Supplement to Employ., Hours, and Earnings, States and Areas, Data for 1980-84.